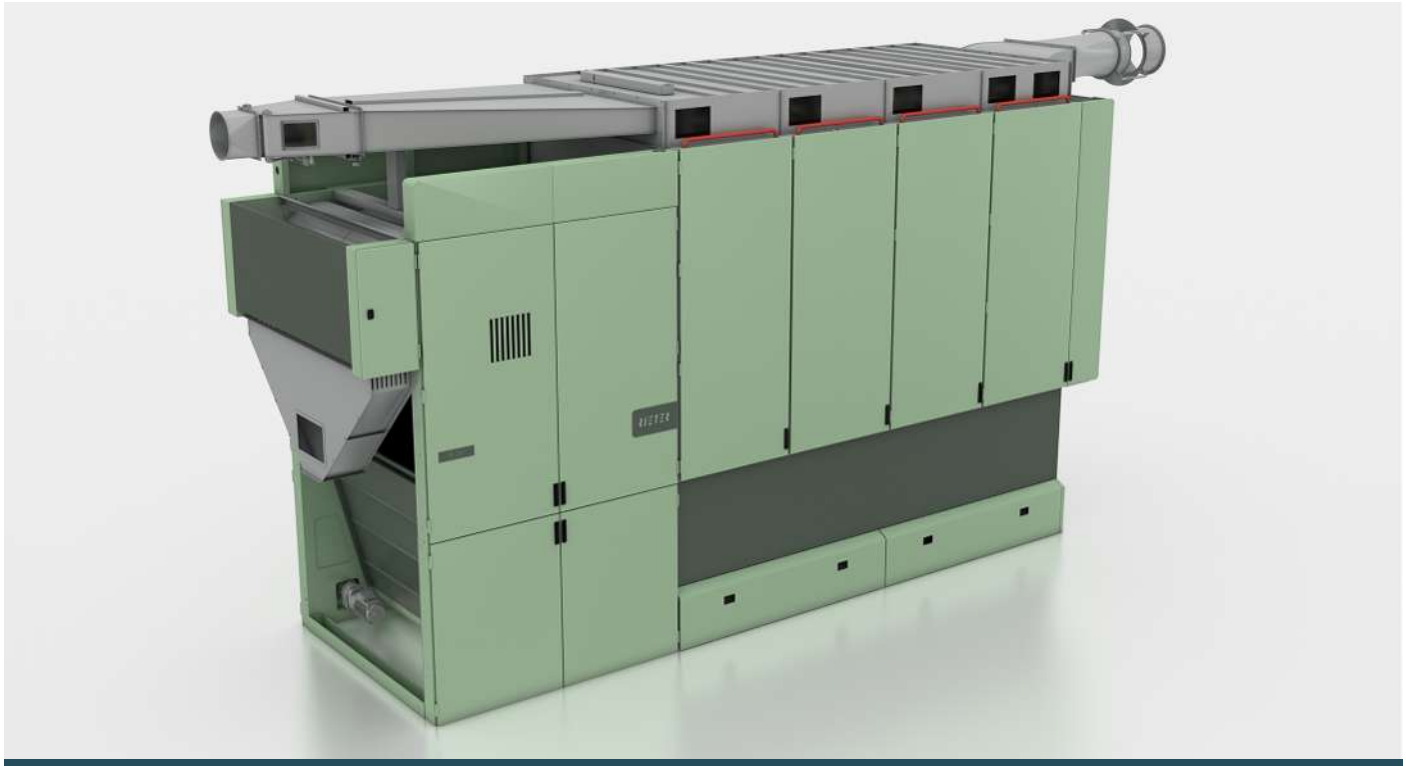
RIETER



Operation Manual

UNImix B 76

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Imprint

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1 Introduction

This chapter contains the basic information about this manual. This chapter contains the information about the used conventions and the CE-certificate for the machine.

1.1 About This Manual

The manual is a part of the machine and is to be kept at the machine. The instructions from the third-party suppliers are also to be kept at the machine.

1.2 Used Conventions

The writing conventions that are used in this manual are as follows:

Writing Convention		
Name	**Example**	**Description**
Section information	Chapter 1, 1.1, 1.1.1	The chapter numbers are given in a sequence. The chapter number starts with the number 1.
Figure number	*Figure 1*	The figure numbers are given in a sequence. The figure number starts with the number 1.
Callout	1	The elements in the figure are identified with position numbers.

1.3 Intended User

Only Rieter-approved personnel are permitted to operate the machine and to do the maintenance work and the repair work at the machine. The personnel must know the content of this manual and how to find the related information.

More information about the intended user is given in chapter 2 of this manual.

1.4 Identification of the Operation Manual

The operating manual can be uniquely identified via the material number and the editorial version. The identification characteristics are specified in the legal notice.

1.5 Instruction of the Personnel

1.6 Preface

The information contained in these instructions is intended to assist the smooth, trouble-free running of the machine and the safety of operators and maintenance personnel.

The instructions contain important notes on how to operate the machine safely, properly and efficiently. By observing these instructions you can help prevent danger, reduce repair costs and downtimes, as well as increasing the reliability and lengthening the service life of the machine.

The operating instructions must be permanently available at the place where the machine is located.

The instructions must be read and followed by everyone who is assigned to work on the machine.

The instructions correspond to the technical state of the art at the time of going to press. Rieter reserves the right to carry out modifications.

Inquiries concerning Service information should be addressed to the Service Centre responsible for your region.

The instructions must be completed as necessary by adding directions based on existing national regulations for the prevention of accidents and the protection of the environment.

1.7 How to Use the Operating Instructions

1.7.1 Symbols in the Document

Danger Symbols

	Danger of falling
	General danger spots
	Suspended load
	Risk of injury

	Risk of injury due to part of the body being pulled in
	Risk of injury due to being pulled in
	Dangerous voltage
	Shock from capacitor
	Danger due to automatic start up
	Laser beam

Prevention Symbols

	Use eye protection
	Wear protective footwear
	No admittance
	Shut down power before working on the installation.
	Switch off via the main switch and secure switch with a padlock
	Press EMERGENCY STOP button
	Do NOT touch

Symbols in the Document

	The page indicated refers to the currently selected chapter.
	More information on this subject can be found on the page indicated
	Incorrect application, not permissible
	Correct application, OK
	Outcome. For example, after an operation step

1.8 Legal Stipulations

1.8.1 Liability

If, contrary to regulations, the assembly of new or existing plant is carried out by a third party, Rieter Machine Works Ltd. declines all liability

The auxiliary agents supplied by Rieter such as crane, roll lifter etc. must be used only at the places and on the types of machine intended and for no other purpose. Rieter Machine Works Ltd. declines all responsibility for any damage due to inappropriate usage of the auxiliary agents.

If the machine is used for any purpose other than that for which it is intended, Rieter Machine Works Ltd. Declines all liability.

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Tightening the Chain ▸ 238

Adjusting the Distance between the Feed Belt and the Spiked Lattice (Standard Setting)

Adjust the Pressure Sensor ▸ 154

Adjust the Separating Vanes ▸ 155

Exhaust Air

Adjust the Stripper Rake

Tensioning the Spiked Lattice ▸ 244

Position of the Opening Roller to the Spiked Lattice (Standard Setting) ▸ 160

Tighten the V-belt ▸ 166

Distance of the Take-off Roller to the Spike Lattice ▸ 165

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Description of the Troubleshooting Process

Always consult *Troubleshooting ▸ 181* part of the operating manual in the event of a malfunction.

Description of the Maintenance Work

Go over the maintenance and lubrication schedules of *Maintenance ▸ 209* part with maintenance staff and mechanics.

Explanation on How to Handle the Electronic Documentation (e-DOC)

Navigating through the e-DOC program

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Selecting the Language and Accepting the License Agreement ▸ 141

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"Filling" and "Saving" the Shopping Basket ▸ 151

Closing the E-DOC Program ▸ 152

See also

General Safety Information [▸ 23]

1.10 EC Declaration of Conformity

EC Declaration of Conformity

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www.rieter.com

Winterthur, 17. June 2015

Maschinenfabrik Rieter AG declares under sole responsibility that the product

UNImix B76

Serial Nr. 40021587-xxxx

to which this declaration relates is in conformity with the following standards.

EN ISO 11111-1 Part 1:2009, EN ISO 11111-2 Part 2:2009, EN 60204-1:2006 Part 1

Following the provisions of Directives:

Machinery Directive 2006/42/EC
Electromagnetic Compatibility Directive 2004/108/EC

Including their modifications

Responsible for the technical documentation is: Guido Lüönd, Product Safety Officer, Maschinenfabrik Rieter AG, Klosterstrasse 20, 8406 Winterthur, Switzerland

Maschinenfabrik Rieter AG

P. Schulz
Head Products SYS

Ch. Sauter
Head Development Opening and Carding

Figure 1: EC declaration of conformity certificate

2 Safety

This chapter contains the information about the machine safety. This chapter contains the information about the location of the safety labels, the safety equipment, and the danger zones in the machine and around the machine. This chapter contains information about the intended user.

2.1 Introduction

This chapter contains information about the machine safety and the machine safety symbols. To know and to obey, all the safety instructions are necessary for the personnel that operate, keep, and repair the machine.

2.2 General Safety Information

This machine has a state-of-the-art technology and supplies a high standard of operational reliability.

The standards and directives applied during design, production, and configuration are listed in the EC/EU Declaration of Conformity and the manufacturer's declaration. Obey the national safety regulations applicable in the country where the machinery is operated, as well as the mill safety regulations and the accident prevention regulations!

2.2.1 Safety Precautions

Intended Use

Orientation

This machine is intended solely for the processing of cotton and 100% man-made fibers, along with blends of such materials. See “Raw materials for processing” in the “Technical data” chapter.

Only closed rooms with suitable air-conditioning for spinning technology are to be used for machine operation.

The machine is to be used only as intended. Operate the machine only according to this operating manual.

Any use beyond the intended purpose is regarded as improper use, in particular using materials hazardous to health, such as asbestos, glass, etc.

Technical State

If the machine is operated while in a defective state, safety, proper functioning and availability will be compromised.

- Operate the machine only while it is in a technically fault-free state.
- Comply with the maintenance schedule.
- Use only original spare parts (indicated in the spare parts catalogue).

If the operating behavior of the machine changes, check the machine for faults.

– Remedy the faults immediately.

– Do NOT make unauthorized modifications or changes to the machine.

Availability of the Operation Manual

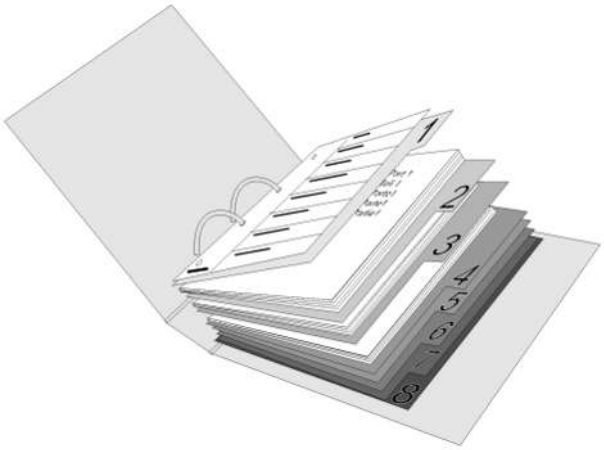

Figure 2: Operating manual

The operating manual must be available to the personnel involved.

Personnel must have read and understood the operating manual, prior to commencing work.

Safety Awareness

For reasons of operability, it is not possible to completely eliminate all sources of danger.

“Overestimation of one’s capabilities” is a major source of danger.

Even routine tasks require full attention at all times.

Qualification of Personnel

Unqualified personnel cannot recognize risks and are therefore exposed to dangers. Only technically qualified personnel are to be assigned tasks at the machine (described in this operating manual).

Installation, operating, maintenance and service personnel must have been trained.

Have the operating authority ensure that personnel comply with the locally applicable rules and regulations for safe and hazard-conscious work.

Have the operating authority specify and make known the responsibilities for tasks. Keys and passwords are to be given to assigned personnel only.

Qualification of different types of personnel:

Maintenance technician: On account of their vocational education and training by the manufacturer of the machine, as well as the job assigned to them, maintenance technicians are in a position to recognize hazards or residual risks that exist during maintenance of the machine, and to take appropriate measures.

Operator: After being trained by the manufacturer or the operating authority, operators are in a position to recognize hazards or residual risks that exist during operation of the machine, in order to guarantee the safe operation of the machine.

Qualified electrician: Maintenance work involving the electrical equipment may only be carried out by qualified electricians (electricians, master electricians, electromechanical technicians, mechatronics technicians, electrical engineering technicians, electrical engineers).

Access to the Machines

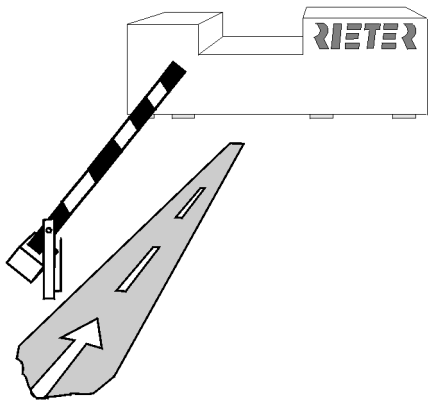

Figure 3: Access to the machines

Only trained and authorized personnel are to have access to the machines.

Personal protective Equipment

Ear protection:

During operation, high levels of airborne noise are emitted at the machine, which can result in hearing damage.

– Use ear protection in accordance with EN 352.

Safety shoes:

At the machine, there is a risk of injury to the feet due to falling objects.

– Wear safety shoes in accordance with EN ISO 20345 (category S3).

Safety gloves for oils and antifreeze agents:

There is a risk of injury to the hands when handling oils and antifreeze agents.

– Wear nitrile safety gloves in accordance with EN 374.

Cut protection gloves:

There is a risk of injury to the hands when handling sharp edged objects.

– Wear cut-resistant gloves with flexible, puncture-proof latex coating in accordance with EN 388:2003.

Thermal-protection gloves:

Surfaces at the machine can become hot.

– Wear thermal-protection gloves in accordance with EN ISO 407.

Safety glasses:

When using compressed air during cleaning tasks, there is a risk of eye injury.

– Wear safety glasses at all times.

When carrying out grinding work for maintenance purposes, there is a risk of eye injury.

– Wear safety glasses at all times.

Clothing

– Use of appropriate clothing minimizes the risk of accident.
– Do NOT wear loose clothing (such as scarves, ties, clothing with wide open sleeves, etc.).
– Cover hair if it is long. Wear a cap or a hairnet at all times.
– Do NOT wear rings or wrist watches.

Protection against inadvertent start-up

If the machine starts up inadvertently, persons working at the machine can be seriously injured as a result.

1. Set the main switch or the safety switch to the “0” position and attach a lock to the switch.
2. Remove the key and keep it on your person.

Protective Devices

The safety of persons will be compromised if protective devices do NOT function effectively. Prior to operating the machine, ensure that all protective devices are functioning effectively. Do NOT remove tightly screwed-on covers, viewing windows and pipes unless the machine is in a safe operating state.

Safe operating state:

The main switch or the safety switch is in the “off” position and secured with a lock. There must be no active machine processes.

Work on electrical Equipment

With the machine at a standstill, set the main switch or the safety switch to the “OFF” position and secure the switch with a lock.

Only electrical technicians are permitted to work at the machine with the main switch in the “ON” position (for measurement and testing purposes).

To guarantee a correct operation sequence, do NOT manually actuate the sensors in normal mode.

External Voltage

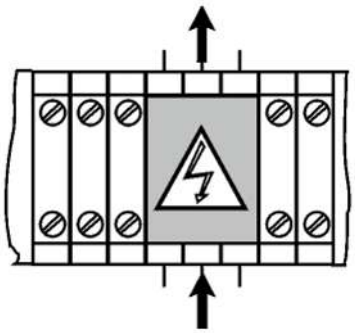

Figure 4: External voltage

Individual circuits may still be live even with the main switch or safety switch in the “OFF” position.

These circuits are marked at the terminals. (see diagram).

Particular care and attention is required in this area.

Supply Line

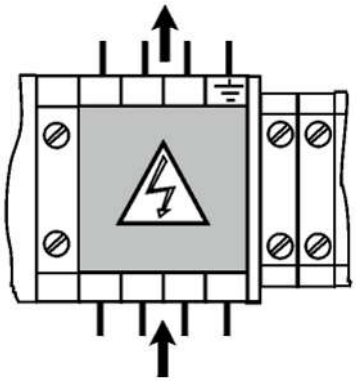

Figure 5: Supply line

The supply line to the main switch remains live, even if the main switch is in the “OFF” position.

The terminals of the supply line are marked. (See diagram).

Particular care and attention is required in this area.

Discharge Duration for Frequency Converters

When carrying out maintenance tasks at frequency converters, comply with the 10-minute wait requirement for discharge.

Safety Circuit

The safety circuit consists of sensors, control elements and actuators. The safety circuit serves to protect man, environment and devices. The elements of the safety circuit are categorized as such in the electrical system documentation.

The following elements are part of the safety circuit:

- EMERGENCY STOP button
- Machine-casing monitors (safety limit switches at doors, hoods, etc.)
- Machine-casing locks (for locking / unlocking of doors, hoods, etc.)
- Safety relay
- Frequency converters with integrated functional safety features
- Controllers with integrated functional safety features

Integrated functional Safety Features of Frequency Converters

STO (Safe Torque Off) - ensures a no-torque state

SOS (Safe Operating Stop) - ensures a safe operational stop

SBC (Safe Brake Control) - ensures safe control of brake

SS1 (Safe Stop 1) - ensures a controlled stop (category 1)

SS2 (Safe Stop 2) - ensures a controlled stop (category 2)

SSM (Safe Speed Monitor) - ensures safe monitoring of speed

SLS (Safe Limited Speed) - ensures safe limited speeds

SDI (Safe Direction) - ensures movement in a “safe” direction

Safe Torque Off (STO) after EN 60204-1

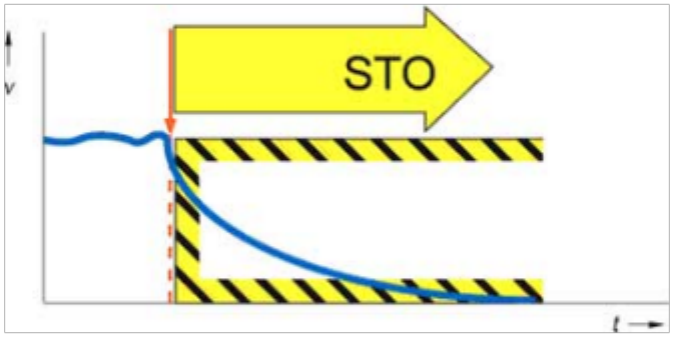

Figure 6: Safe torque off

The function STO ensures, that no torque building energy can work on a machine. This prevents an unexpected start-up of the motor. The controller of the operator monitors this condition.

Safety Instructions for Maintenance

Drives with integrated functional safety have a limited service life.

– Never open elements of the safety circuit.

– Do NOT modify any elements.

Only ever replace defective safety elements with complete work units! For this commission trained specialists.

Safety elements must only be repaired by the manufacturer or by a certified organization (RIETER Repair Station).

To guarantee the effectiveness of the safety features, these measures must always be implemented.

Required Action following Replacement of a Safety Element

1. Execute the function test of the safety circuit.
2. Document the replacement and test run events in the log (SAFETY-CIRCUIT LOG) of the electrical documentation for the relevant machine.

Exclusion of Liability

Any unauthorized opening and tampering of safety elements or devices with safety functions contrary to the operating manual instructions (including e.g. the replacement of electronic boards (PCBs) between frequency converters, the removal of such boards, etc.) can lead to physical injury and/or material damage.

Any unauthorized opening and tampering of safety elements or devices will result in the loss of all warranty claims, the waiving of liability for ensuing consequences and the loss of any claims for compensation of damage.

Any costs incurred for the repair or replacement of such a device as a result of unauthorized opening shall be borne in full by the customer.

Interventions on a safety-relevant device, that is not described in this operating manual, and that are executed by an unauthorized person, have as consequence that the safety functions of the device, and thus of the machine, no longer comply with the statutory regulations. Unauthorized opening, changing or repair is prohibited and can be verified. The manufacturers have all the information on the safety elements, e.g. serial numbers of the converters and also of the integrated elements.

Safe Work Environment

Risk of slipping and tripping:

Slippery surfaces and trip hazards can lead to serious accidents.

- Keep aisles, handles, steps, ladders, platforms and railings free of grease, oil and other soiling.
- Do NOT use the machine as a climbing aid or as a means of support.
- Use only the steps and platforms provided.
- Wear anti-slip safety shoes.

Safety Markings

The safety of persons will be compromised if safety markings are not discernible.

- Replace markings that are not discernible.
- Do NOT remove or cover safety markings.

Aids and Tools

Auxiliary aids such as ladders, lifting devices, etc. must be in perfect condition.

Tools and other auxiliary aids must not be deposited on machines that are running.

When using chemicals, such as solvents, comply with the instructions of the manufacturer.

Max. Weight for manual Handling

A max. weight of 25 kg for regular handling is specified in EN 1005-2.

If the weight of a subassembly exceeds 25 kg, use two persons or lifting equipment for handling purposes.

Work at Buildings and Installations

Bring the machine to a standstill, If, for example, work is to be carried out above the machine, ensure that the machine is stopped beforehand.

Fire Protection

Figure 7: Fire protection

With textile processes, fires can occur.

Fires start through ignition of fibers, fly or fiber dust, when there is smoking, contact of cotton with bearings that are running hot, sparks flying from metallic impurities and electrically generated sparks.

Provide manually-operated extinguishing systems, etc. for fire-fighting purposes.

Instruct personnel in the correct handling of extinguishing systems, use of escape routes, etc.

Determine the extinguishing systems to use in consultation with the local fire-protection authorities.

Disposal

If the machine is to be shut down for good, the legal requirements for re-use and recycling which hold in the respective country are to be complied with.

The operating authority is responsible for the proper disposal of operating media, such as oils, greases and batteries.

2.3 Safety Messages

The safety messages contain a signal word, a safety symbol, and the safety instructions.

DANGER

If the safety instructions are NOT obeyed, the situation causes death or irreversible injuries.

WARNING

If the safety instructions are NOT obeyed, the situation can cause death or injuries.

CAUTION

If the safety instructions are NOT obeyed, the situation can cause small injuries.

Structure of the Safety Messages

Each safety message contains the elements that follow:

- Safety symbol
- Signal word
- Type and source of the danger
- Consequences of the danger if not prevented
- Instructions to prevent the danger

2.4 Product Safety

This chapter contains the information about the product safety.

2.4.1 Danger Zones at the Machine

2.4.1.1 Mechanical Danger Zone

2.4.1.2 Electrical Danger Zone

2.4.2 User Qualification and Hierarchy

This chapter contains the information about the 3 different user levels that are related to the type of the tasks that are done at the machine:

Operators (Level 1)

The operators are approved personnel that do the cleaning tasks and the daily maintenance work at the machine.

- The operators know the machine safety and how to keep the machine safe.
- The operators use the personal protective equipment if the personal protective equipment is necessary.
- The operators do a regular training to operate the machine safely.
- The operators know the operation manual and, specially, the safety chapter of this manual.

Supervisors (Level 2)

The supervisors are approved personnel that do the work at the machine.

- The supervisors are permitted to do the configuration of the specified machine parameters, to do the maintenance work, and to give instructions to the operators.
- The supervisors did the Rieter training courses and got the certificates.

Technicians (Level 3)

The technicians are approved personnel that do the work at the machine. The technicians have expertise that was given by Rieter about the adjustments and the maintenance of the machine.

- The technicians make changes to most of the machine parameters.
- The technicians are permitted to give instructions to the supervisors and the operators.
- The technicians regularly do the Rieter training courses and get the certificates.

2.5 Property Damage Notice

This signal word NOTICE shows the information about the damage of the machine or close objects. If the NOTICE information is not obeyed, damage to the related property occurs.

NOTICE

This signal word shows that the user must obey the given procedure or message to prevent a property damage.

2.6 Emergency Information

Emergency Stop Button

The emergency stop button is pushed to stop the machine immediately in an emergency.

2.6.1 Personal Injury

If an accident occurs, do the first-aid treatment. Make a call to the local emergency center.

Tell a report of the emergency:

- Who makes the call?
- What occurred?
- When?
- Where?
- How many persons have an injury?
- Do other dangers occur?

2.7 Safety Devices

2.7.1 Secure the Ladder

DANGER

Entry to the hazard zone is strictly forbidden!

Ladder may accidentally tip over.

✓ If working on the UNImix using the accompanying or another ladder, the ladder must be secured using a safety lanyard.

▶ Do NOT step onto the machine.

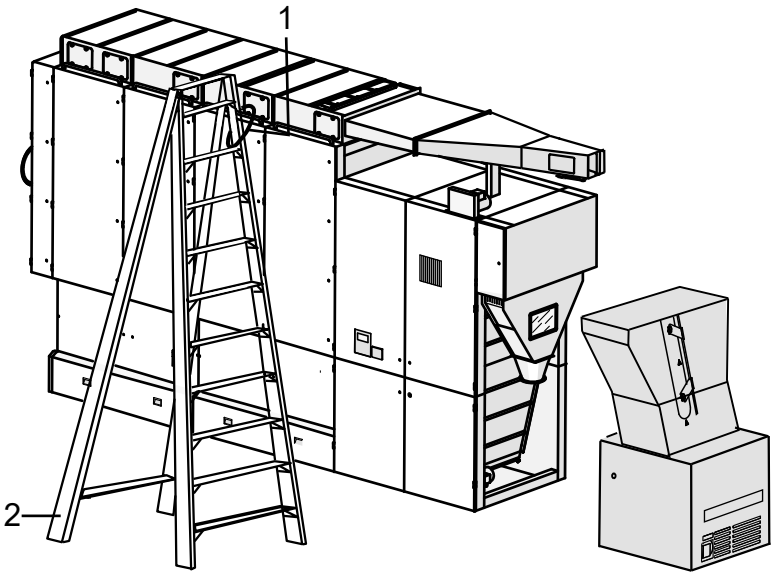

Figure 8: Secure the ladder

1	Safety lanyard	2	Ladder

2.7.2 Secured Doors and Covers

The two front covers at the bottom are secured with safety switches and each is identified by a red ring attached to the bolt. If such a cover is opened, the machine will be deactivated.

The door at the cleaning port for accessing the interior space is secured with a limit switch. When the door is open, the machine is secured against starting.

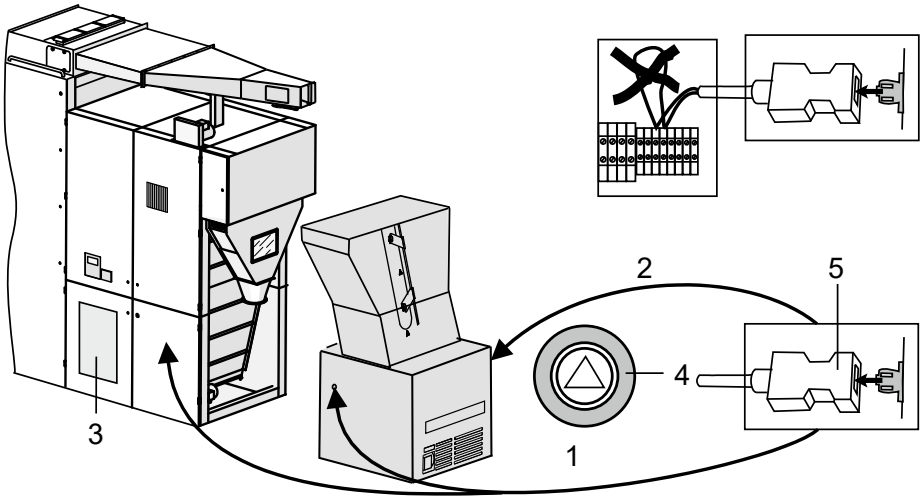

Figure 9: Secured doors and covers_2

1	Doors, left-hand side	2	Doors, right-hand side
3	Cleaning port	4	Red ring

5 Safety switch

2.7.3 Bolted or Non-fused Covers

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

WARNING

Moving machine components!

Risk of hand injuries because the machine components move.

- ▶ Do **NOT** stay in the danger zone.
- ▶ Do **NOT** touch the machine components that move.

Tightly screwed-on covers and windows may only be removed if the main switch is set to the “OFF” position and secured. The covers prevent persons inadvertently reaching inside the drive units. If such covers are removed or servicing work, then they have to be refitted immediately upon completion of the work. The safety screws 6 for the windows 2 to 5 can only be loosened using a chisel. If, due to an emergency, the safety screws 6 are removed with a chisel, they are to be replaced later.

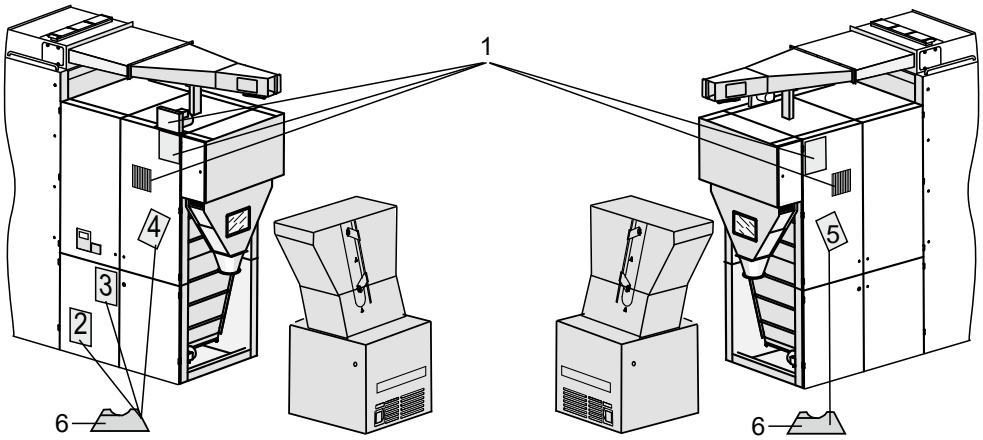

Figure 10: Bolted or non-fused covers

1 Screwed-on covers

2 – 5 Windows secured with safety screws

6 Safety screws

2.7.4 Warning Sign

The warning signs and yellow markings indicate a hazard zone. If work is carried out incorrectly at such places, there is an increased risk of injury. Damaged or missing warning signs are to be replaced immediately.

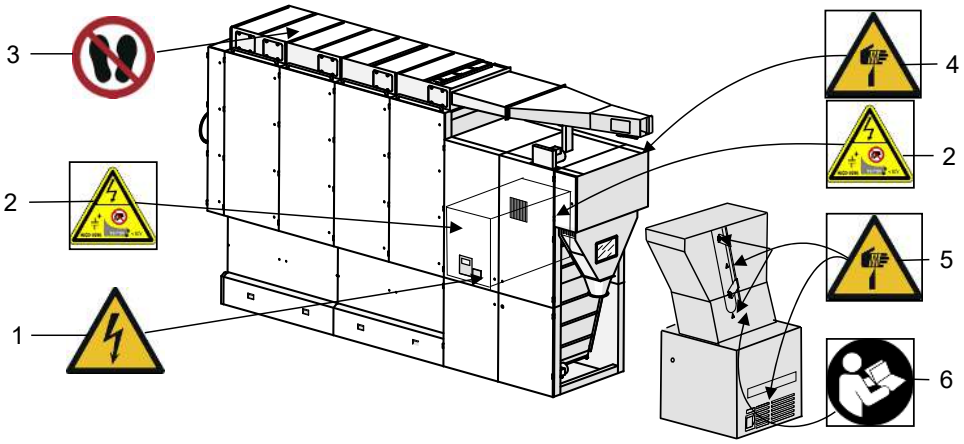

Figure 11: Warning sign

1	Warning signs: On control cabinet doors (left and right)	2	Warning signs: At control-cabinet frequency converters
3	Prohibition signs: At machine	4	Warning sign: On cover at drive unit for spiked lattice
5	Warning signs: On windows of R/S module (left and right)	6	Mandatory sign: At R/S module (see operating manual)

2.7.5 Covers for the Openings Near the Spiked Lattice

The covers for the openings may need to be removed for cleaning work. These covers may be removed only when the main switch is in the “OFF” position and secured with a lock. Before removing the lock on the main switch, the covers have to be re-fitted.

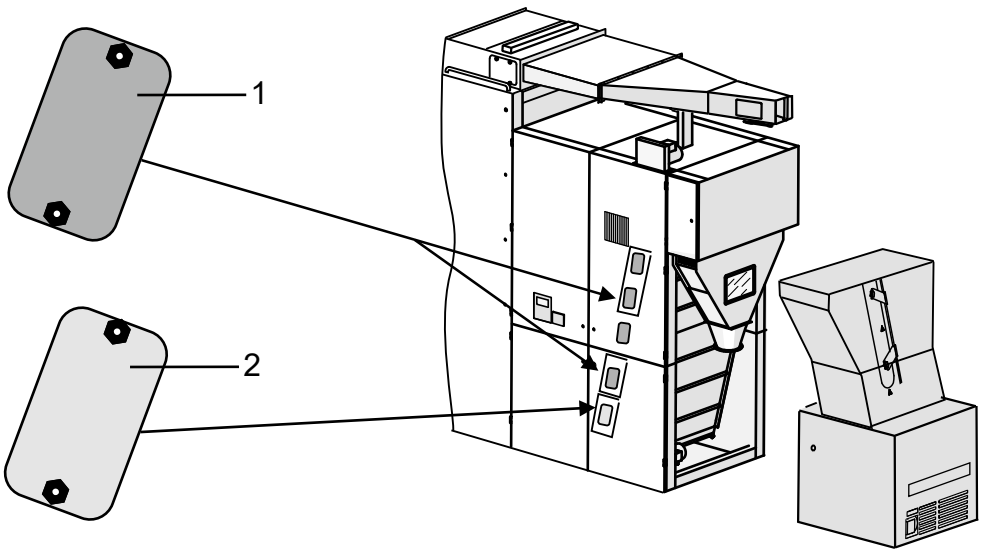

Figure 12: Covers for the openings near the spiked lattice

1	Steel covers	2	Plastic covers

2.7.6 Controls with Safety Function

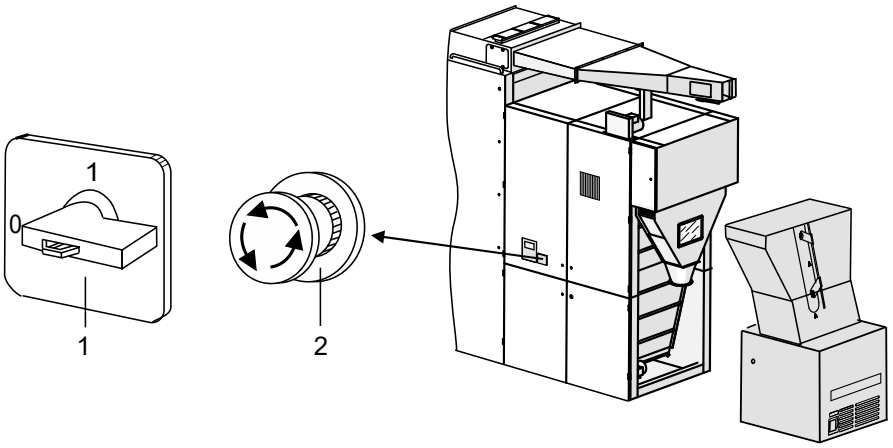

Figure 13: Controls with safety function

1	*Main Switch ▸ 66*	2	*EMERGENCY SHUT-DOWN button ▸ 67*

2.8 Responsibilities and Qualifications

Responsibilities

By clear rules defining who is responsible for what, the customer creates optimum requirements for ensuring safety in the plant.

The areas of responsibility for each authorized person must be officially laid down. This applies in particular to jobs involving setting and servicing mechanical, electric and pneumatic devices.

This guarantees that unauthorized persons do not have access to the machines. Visitors may enter machine rooms only if accompanied by an authorized person.

It must be made clear to visitors that machines are a potential source of danger when running.

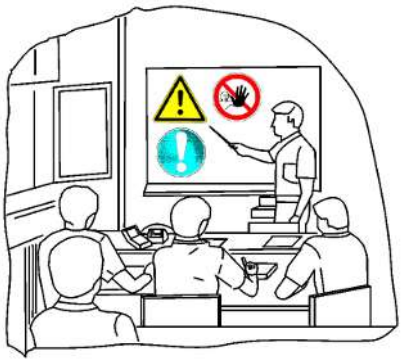

Figure 14: Responsibilities and qualifications

Training

Inadequately trained staff may cause accidents. This may also result in injury to others.

Operating and maintenance staff must be given theoretical and practical training.

This is the general purpose of this part of the instructions. The corresponding operating information in the instructions refers to specific dangers and must always be observed.

If well-trained personnel are in charge of machines, then these will produce a higher yield and a better quality, and there will be fewer faults, higher output and fewer injuries.

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3 Product Information

This chapter contains the information about the basic machine functions and the primary machine assemblies. This chapter contains the information about the location of the machine identification plate and the technical data of the machine.

3.1 Technical Data

The technical information is for a standard machine.

3.2 Machine Identification

Manufacturer

Maschinenfabrik Rieter AG

Klosterstrasse 20

CH-8406 Winterthur

Tel. no.: +41 52 208 71 71

Fax: +41 52 208 83 20

3.3 CE Nameplate

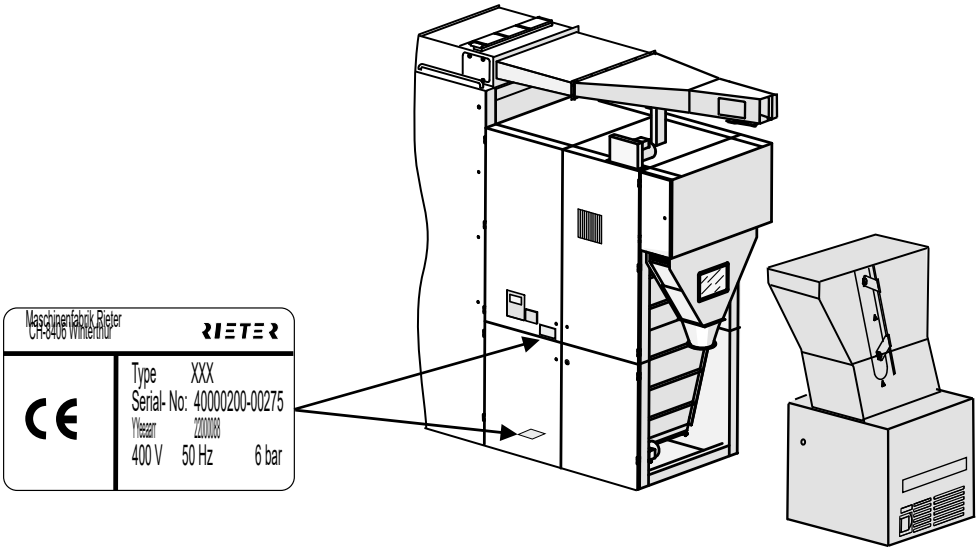


Figure 15: CE nameplate

Machine type	Specifies the exact type	V	Voltage specification
Serial no.	Every machine has a unique serial number	Hz	Mains frequency

Year	It shows the year the machine was delivered	bar	Compressed air requirement

When ordering spare parts, the nameplate information must be indicated on the order form. The second nameplate can be found behind the door.

3.4 Control Elements

The information that follows is about the control elements on different machine parts.

3.5 Raw Materials

The machine only uses the textile raw materials that follow:

Cotton	From all sources
Man made fiber	Natural and synthetic polymers
Maximum staple length	60 mm

3.6 Specifications

3.6.1 Performance Characteristics

Intended use	The machine is intended solely for the processing of textile raw materials.

Table 1: Intended Use

Cotton	From all sources
Man-made fibers	Natural and synthetic polymers

Table 2: Raw Materials

Fiber length	65 mm

Table 3: Fiber Length

Production with opening roller and spiked lattice moving in same direction	1000 kg/h
Proportion of waste > 40 % (noils or other waste)	800 kg/h

Table 4: B 76 with R/S Module: Cotton Production

Production with opening roller and spiked lattice moving in same direction	1000 kg/h

Table 5: B 76 with R/S Module: Man-made fiber Production

Speed of opening roller for movement in same direction	575 (500...610) rpm
Speed of opening roller for movement in opposite direction	70...150 rpm

Table 6: Speed of Opening Roller for Movement in Same/Opposite Direction as/to Spiked Lattice

Speed of take-off roller	612 rpm

Table 7: Take-off Roller

Speed of spiked lattice	23.8...120.9 m/min

Table 8: Spiked Lattice

Speed of feed belt	0.06...1.22 m/min

Table 9: Feed Belt

100 Hz motor	500...1500 rpm
50 Hz motor	500...1500 rpm
50 Hz motor	500...1000 rpm

Table 10: Speed of Opening Roller of R/S Module with M32 Motor

– Opening roller R/S module (Alternative):
  Version for cotton: grating with mote knives in the area of the opening roller
  Version for man-made fibers: Closed guide plate instead of grating and mote knives in the area of opening roller
– Settings for mote knives R/S module (Alternative):
  Manual: Setting without programmed parameters
  VarioSet: Setting with programmed parameters

3.6.2 Dimensions

3.6.2.1 Space Requirements for the B 76 and B 76 R/S

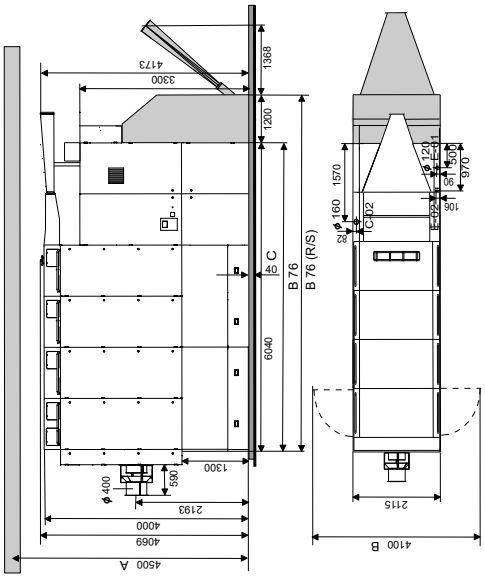


Figure 16: Space requirements for the B 76 and B 76 R/S

Location number	Designation	Prerequisite	Dimension
A	Minimum Room Height (For installation and monitoring.)	--	see Plan mm (min. 4500)
B	Max. width with open doors	--	3498 mm
C	Level uniformity per running meter	Ground clearance: approx. 40 mm	+/- 3.00 mm /m
C-02	Extraction under upright lattice upwards	--	see Plan
Minimum distance	Minimum distance from one side of the machine to a wall or to the next machine.	--	min. 1200 mm
E-01	Electrical hook-up, bottom.	--	see Plan
E-02	Electrical hook-up, top.	--	see Plan

3.6.3 Weights

Designation	Prerequisite	Weights
Storage part complete	B 76	approx. 2500 kg

Designation	Prerequisite	Weights
Delivery section	B 76	approx. 2500 kg

Designation	Prerequisite	Weights
Take-off section	B 76	approx. 300 kg

Designation	Prerequisite	Weights
R / S module	B 72 R/S	approx. 2000 kg

Designation	Prerequisite	Weights
Total weight	B 76	approx. 5300 kg

Designation	Prerequisite	Weights
Total weight	B 72 R/S	approx. 7300 kg

3.6.4 Floor Condition

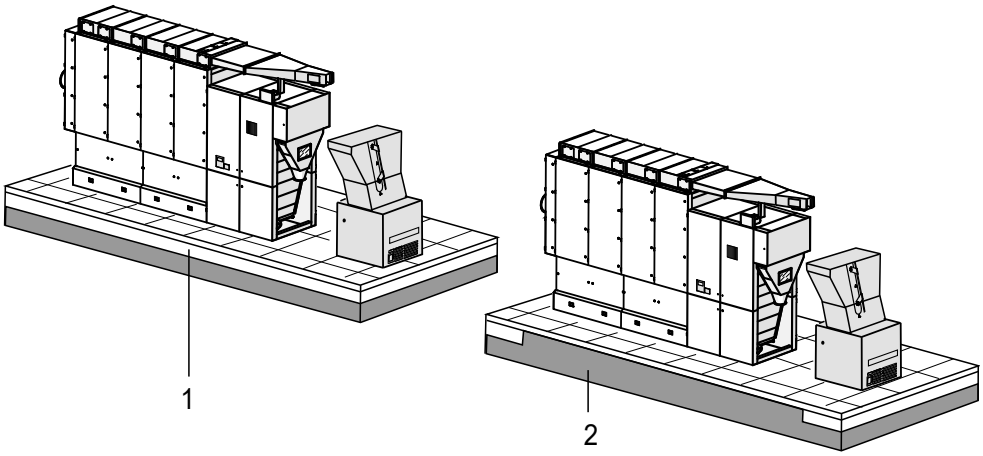


Figure 17: Floor condition

1	Intermediate layers: It is not permitted to have sand or asphalt beneath floorings.
2	In order to prevent one-sided subsidence of individual machine subassemblies, replace any such intermediate layers around the foot plates with concrete.

3.6.5 Machinery Requirements

3.6.5.1 Air Ratio

Air Properties

Extraction rate beneath spiked lattice	0.50 m³/s

Flow rate at material entry point	1.1...1.3 m³/s
Flow rate at material exit point for 220-mm pipe diameter	0.6...0.9 m³/s
Extraction rate for exhaust air	Approx. 1.20 m³/s
Static overpressure in exhaust air chamber	+20 to +40 Pa
Flow rate at material exit point of R/S module for 220-mm pipe diameter	0.5...0.7 m³/s
Vacuum for waste disposal at R/S module	1000 Pa
Air flow rate for waste disposal at R/S module	0.5 m³/s

3.6.5.2 Electrical Data

If the mains voltage is not within the specified range, use a transformer to stabilize the mains voltage.	3 x 400 V +/- 10%

Table 11: Mains connection

Machine-specific data	See schematic diagram

Table 12: Installed electrical power

3.6.6 Emissions

3.6.6.1 Noise Emission

Sound power level at workplace, LpAd (reference pressure: 20 µPa)	< 70 dB

Measurement standard: Max. rate for spiked lattice: 89.5 m/min

3.7 Overview of Special Tools

Extension

Removal of feed belt rollers.

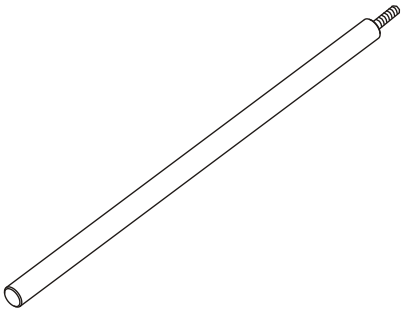


Figure 18: Overview of Special Tools_1

Suspension Device for the B 76

Removal of spiked lattice for the B 76

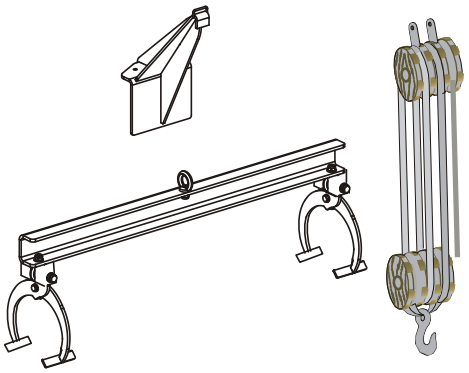


Figure 19: Overview of Special Tools_2

Installation Tool for R/S Module Gas Spring

Remove and install gas springs of feed rollers.

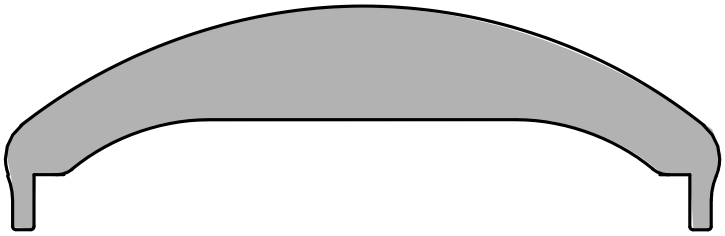


Figure 20: Overview of Special Tools_3

Preparing the Tool for Gas Springs

Compress gas spring before installation.

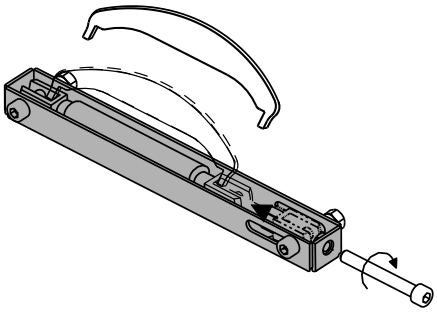


Figure 21: Overview of Special Tools_4

Grease Gun

Lubrication of lubricating nipple

Capacity per pump stroke	0.333 cm³

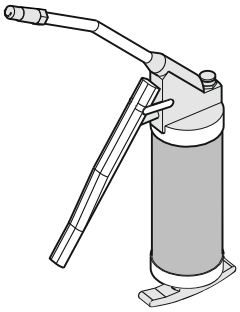


Figure 22: Overview of Special Tools_5

The capacity without counter-pressure is 0.5 cm³.

3.8 Machine Description

3.8.1 Overview of Subassemblies

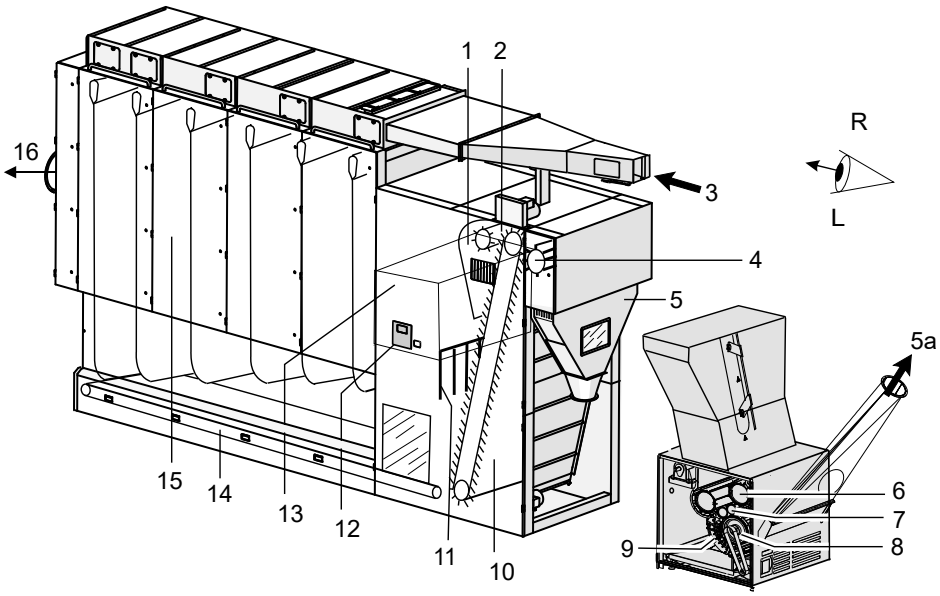


Figure 23: Overview of subassemblies

1	Dynamic storage	9b	Solid plate for S (synthetic fibres)
2	Opening roller	10	Spike lattice
3	Material inlet with distributor flap	11	Stripper rake
4	Take-off roller	12	Operating unit
5	Material inlet (without R/S module)	13	Electro cabinet
5a	Material inlet (for R/S module)	14	Conveyor belt
6	Compression rollers	15	Storage with 8 chambers
7	Feed rollers	16	Exhaust air
8	Opening roller	L/R	The right and left side of the machine is determined by viewing it from the material delivery end.
9a	Grating for R (cleaning)		
9b	Solid plate for S (synthetic fibres).		

3.9 Function Description

The chapters that follow contain the information about the function of the machine and the primary components.

3.9.1 UNImix

3.9.1.1 Description

Purpose: UNImix B 76: Mixing and Opening of Material

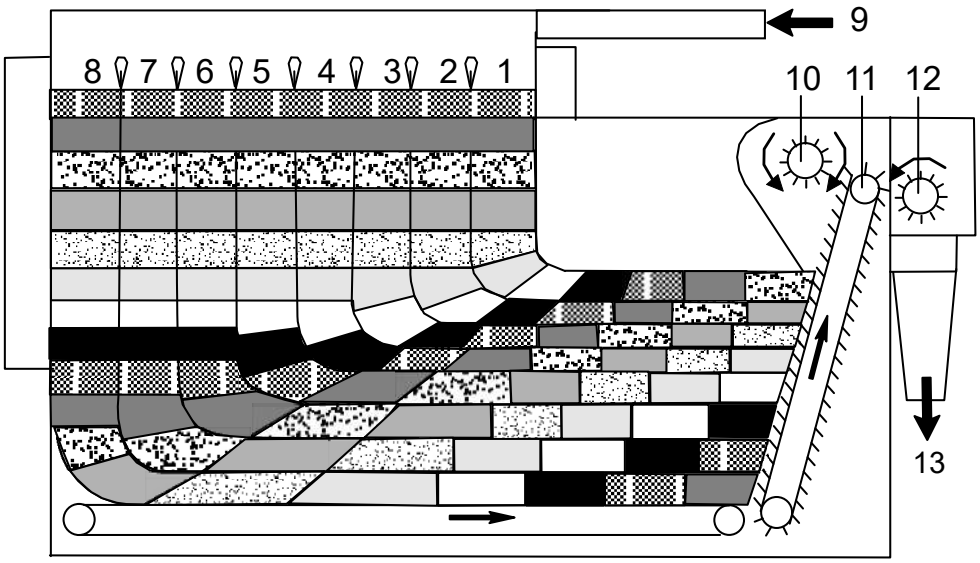


Figure 24: Mixing and opening of material

Method of operation

- The partition walls divide the fed material into layers.
- The blend is produced by shifting the layers (1....8) between the material inlet 9 and the material outlet.
- The upright lattice 11 removes material simultaneously from all eight layers, so that a homogeneous blend is produced.
- The material is again thoroughly blended in the area of opening roll 10.
- The distance between the opening roller 10 and the spiked lattice 11 affects the production and the degree of opening.
- The take-off roller 12 removes the material from the spiked lattice 11.
- The tufts are collected in the suction duct 13 from where they are then extracted by the next machine downstream.

Purpose: UNImix B 76 R/S: Blending and Cleaning of Material using a Grating for Cotton or an Opening Mechanism for Synthetic Fibres

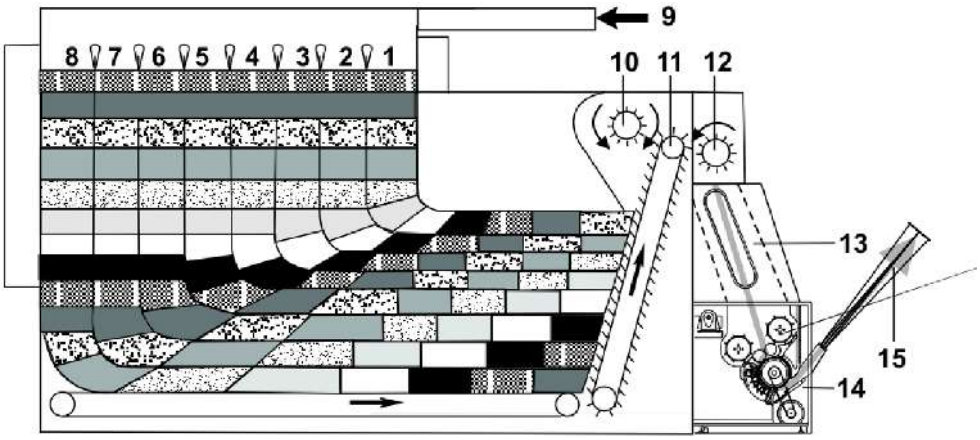


Figure 25: UNImix B 76 R/S: Blending and cleaning

Method of operation

- The partition walls divide the fed material into layers.
- The blend is produced by shifting the layers (1....8) between the material inlet 9 and the material outlet.
- The upright lattice 11 removes material simultaneously from all eight layers, so that a homogeneous blend is produced.
- The material is again thoroughly blended in the area of opening roll 10.
- The distance between the opening roller 10 and the spiked lattice 11 affects the production and the degree of opening.
- The take-off roller 12 removes the material from the spiked lattice 11.
- The tufts are collected in the feed chute of the module 13.
- The material is cleaned and opened in the cleaning section 14 and then fed to the next machine downstream.
- The tufts are collected in the suction duct 15 from where they are then extracted by the next machine downstream.

3.9.2 Upper Blend Module

3.9.2.1 Material Entry

3.9.2.2 Description

Purpose: Storage Pressure Monitoring

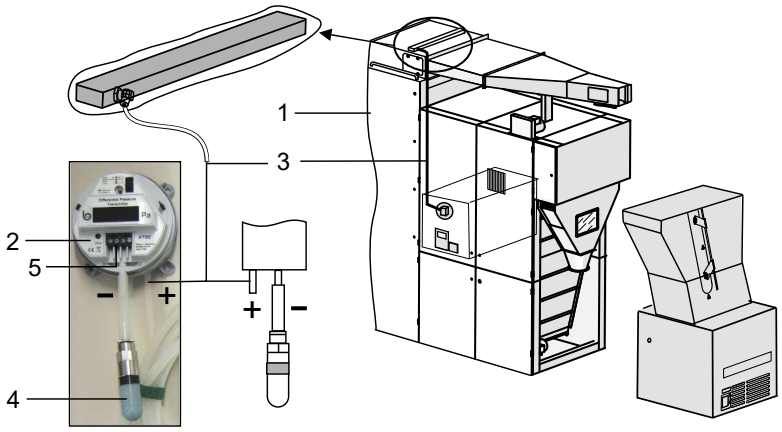


Figure 26: Material entry description

+	Connection point for plastic hose 3	1	Storage
2	Pressure sensor in electrical panel	3	Plastic hose running to the pressure reduction device housing
4	Dust filter at connection point -	5	Electrical connections

The pressure sensor 2 monitors the excess pressure in storage bin 1. The supply of material to the UNImix is controlled by taking into account the parameter set for excess pressure.

3.9.3 Separating Vanes

3.9.3.1 Description

Purpose: To Influence the Filling of the Chambers

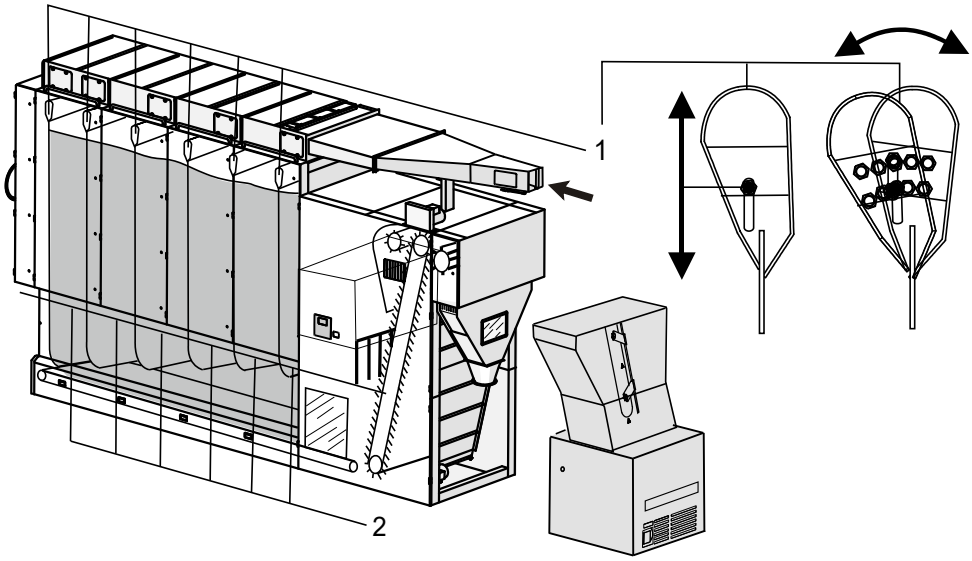


Figure 27: Separating vanes

Method of operation

- The separating vanes 1 can be adjusted in height and in three different positions.
- Before the separating vanes are adjusted, the filling can be influenced by altering the fan speed.
- The filling of the individual chambers 2 can be subsequently assessed.
- The separating vanes 1 are to be adjusted according to the filling process.
- The most favorable settings are to be determined by trial and error.

3.9.4 Delivery Section

3.9.4.1 Stripper rake

3.9.4.2 Description

Purpose: Material Retention

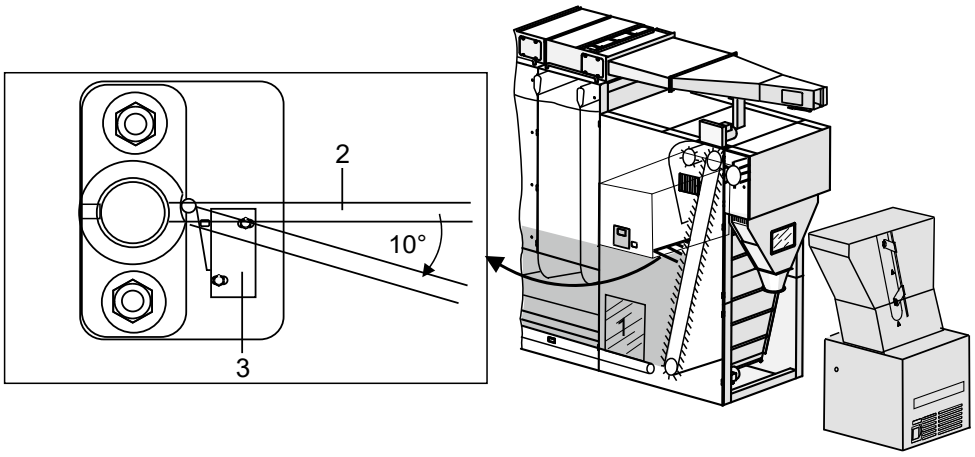


Figure 28: Stripper rake

The rake 2 holds the material back to prevent large chunks of material being carried along by the spiked lattice.

Method of operation

– As soon as there is an insufficient quantity of material 1 on the conveyor belt, the rake 2 is lowered.

– This causes the limit switch 3 to be pressed. The speed of the conveyor belt is increased via the control unit.

3.9.5 Control Technique

3.9.5.1 Basic Module of the Control System

3.9.5.2 Description

3.9.5.3 Frequency Converter

3.9.5.4 Description

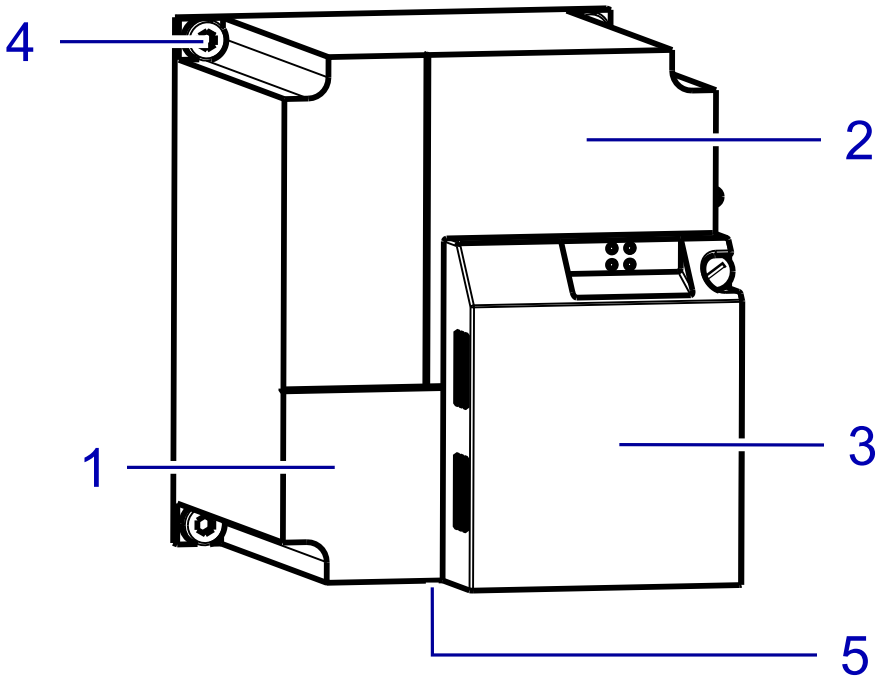


Figure 29: Description of frequency converter

1	Power unit	2	Operating unit
3	Option board	4	Retaining screws
5	Cable duct		

The frequency converter series contains models with differing designs. These differ in size and form according to the design. The main components of each version are nevertheless the same.

3.9.6 Operator Panel

3.9.6.1 Description

Structure

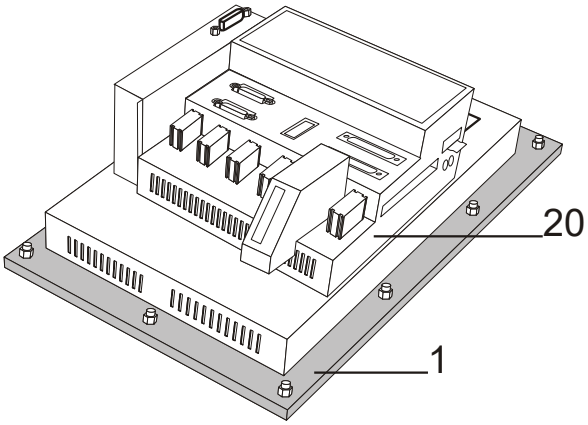


Figure 30: Operator panel description

The operator panel 1 and the machine control system 20 form a unit.

Purpose: Operator Panel

The controls and displays on the operator panel 1 enable functions to be carried out, input and queries to be made.

Purpose: Machine Control System

The machine control system 20 contains the program for the operator panel 1 as well as for the controller of the machine.

Controls all machine functions.

4 Display Elements and Operating Elements

This chapter contains the information about the elements that are used to operate the machine.

4.1 T1000V Frequency Converter, Operating Unit

4.1.1 Data Display, Frequency Converter

Figure 31: Data display, frequency converter

Identifying feature: Seven-segment display.

Description of Function

Indicates monitoring data, parameter numbers and settings.

4.1.2 ESC key, Frequency Converter

Figure 32: ESC key

Description of Function

Used to return to the previous menu.

4.1.3 RESET Key, Frequency Converter

Figure 33: RESET Key

Description of Function

Used to move the cursor to the right and to acknowledge a fault after it has been rectified.

4.1.4 RUN Key, Frequency Converter

Figure 34: Run key

Description of function

Used to start frequency converter operation, given that the frequency is being controlled via the operating unit (local mode).

4.1.5 RUN LED, Frequency Converter

Description of Function

The signals provided by the LED (and their interpretations) are as follows:

Lit

The motor is running.

Flashing

The speed is being reduced.

The reference value for the frequency is 0.

Rapid flashing

Drive is not active.

4.1.6 Down Arrow Key, Frequency Converter

Figure 35: Down arrow key

Description of Function

Used to move partial image down, move cursor down, and reduce values.

4.1.7 STOP key, Frequency Converter

Figure 36: STOP key

Description of Function

Used to stop frequency converter operation.

4.1.8 ENTER Key, Frequency Converter

Figure 37: Enter key

Description of Function

Used to confirm and save adjusted values and parameter settings.

4.1.9 LOCAL/REMOTE Key, Frequency Converter

Figure 38: Local/Remote key

Description of Function

Used to switch between the control unit involving the operating unit (LOCAL) and the control terminals (REMOTE).

4.1.10 LO-RE-LED, Frequency Converter

Description of Function

The signal provided by the LED (and its interpretation) is as follows:

Lit

The frequency converter is being controlled via the digital operating unit (local mode).

4.1.11 ALM LED, Frequency Converter

Figure 39: ALM LED, frequency converter

Description of Function

The signals provided by the LED (and their interpretations) are as follows:

Flashing

The drive has the “Alarm” status.

Lit

The drive has the “Fault” status.

4.1.12 REV LED, Frequency Converter

Figure 40: REV LED, frequency converter

Description of Function

The signals provided by the LED (and their interpretations) are as follows:

Lit

The motor runs in reverse.

Unlit

The motor runs forwards.

4.1.13 DRV LED, Frequency Converter

Figure 41: DRV LED, frequency converter

Description of Function

The signals provided by the LED (and their interpretations) are as follows:

Lit

The drive is ready.

Unlit

The drive is in one of the following modes:

“Verify”, “Setup”, “Parameter Setting”, “Auto”.

4.1.14 FOUT LED, Frequency Converter

Figure 42: FOUT LED, frequency converter

Description of Function

The signals provided by the LED (and their interpretations) are as follows:

Lit

The output frequency is indicated.

Unlit

A feature other than the output frequency is indicated.

4.1.15 Up Arrow Key, Frequency Converter

Figure 43: Up arrow key

Description of Function

Used to move partial image up, move cursor up, and increase values.

4.2 Start Button

The start button is green.

Before the start button is pushed, the operator must close all hoods and doors.

The start button has 2 functions:

- Machine starting
- Machine starting after clear all error messages.

4.3 Stop Button

The stop button is red.

When the operator pushes the stop button, the machine stops and the drafting system automatically releases load after a specified period of time. But the scanning rollers do not release load.

4.4 Main Switch

The main switch has position 0/OFF and position I/ON. The main switch is set to the position 0/OFF to disconnect the power supply from the machine or set to the position I/ON to connect the power supply to the machine. The main switch is not an emergency stop button.

Locking the Main Switch Set the main switch to position 0/OFF and padlock it before the maintenance works and the changeover works.

4.5 Emergency Stop Button

The emergency stop button is only used if there is an emergency. When the operator pushes the emergency stop button, the situations that follow occur:

- The machine stops immediately.
- All connected peripheral machines of the machine stop immediately.

The operator can turn the emergency stop button to release the emergency stop button.

4.6 Operating Elements

This section contains the information about the operating elements of the machine.

4.7 Display Elements

This section contains the information about the display elements of the machine.

4.8 Operating Unit and Machine

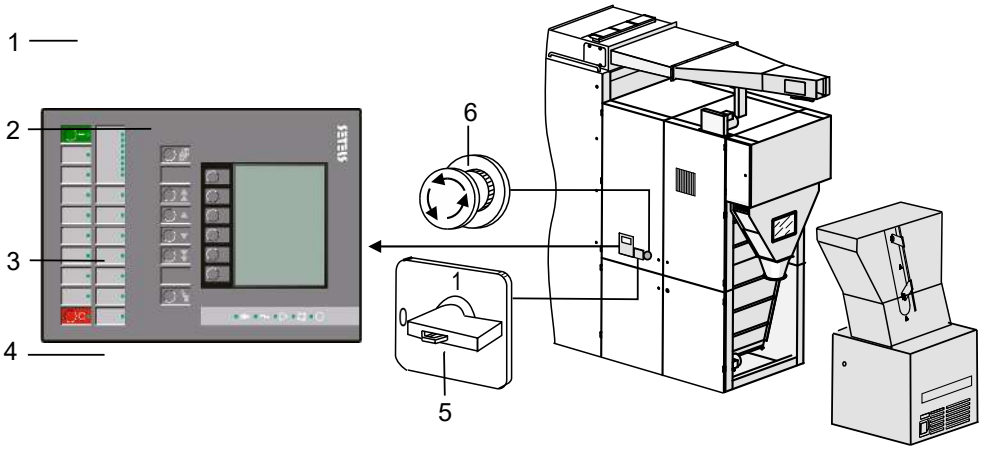


Figure 44: Operating unit and machine

1	LED status display	2	Functions of the program keys
3	Control keys	4	Keyboard and machine keys
5	*Main Switch ▸ 61*	6	*Emergency Shut-Down Button ▸ 67*

The operator interface panel is the interface between the operator and the machine control system.

All the functions of machine operation are available with the operational controls and displays on the operator panel.

The surface of the operator panel consists of 4 segments.

4.8.1 LED Status Display

The state of the machine is shown by means of 5 LEDs.

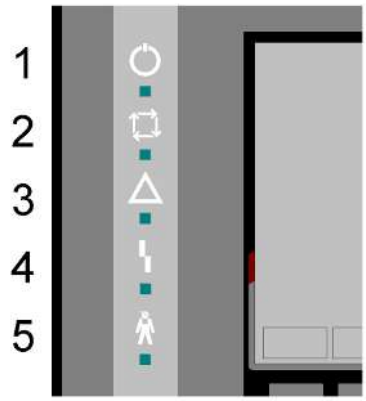


Figure 45: LED-status display

1	*LED Electric Power Supply ▸ 79*	2	*LED Automatic Mode (Production Mode) ▸ 79*
3	*LED "Alert ▸ 80*	4	*LED "Malfunction" ▸ 80*
5	*LED Call "Service Personnel ▸ 80*		

4.8.2 Functions of the Program Keys

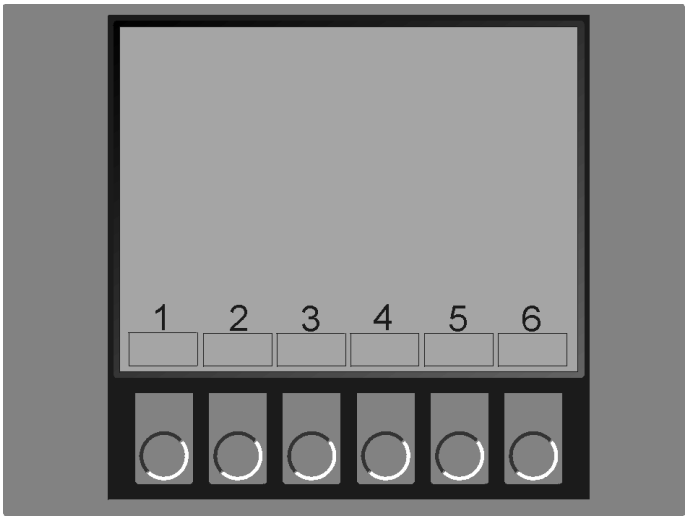
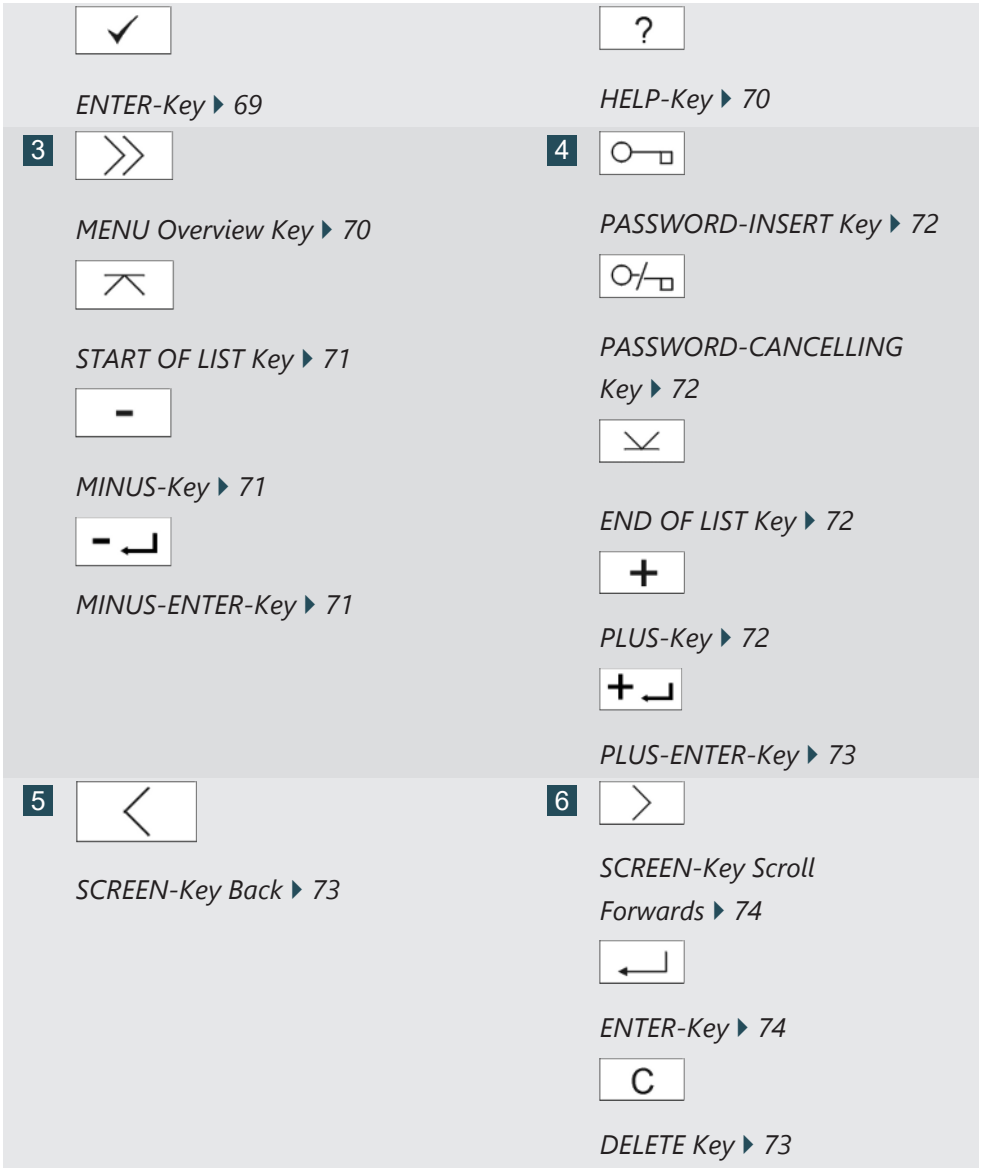


Figure 46: Functions of the program keys

1	30.2 *DIRECT Key, Forward ▸ 69* *POINTER Key Back ▸ 69*	2	40.1 *DIRECT-Key Back ▸ 70* *POINTER Key Forward ▸ 70*



The function of the program keys, immediately below the display unit, depends on the displayed screen.

Program keys are also known as soft keys.

For example, the function of the fourth program key is different in the basic screen from what it is in a data screen.

The corresponding symbol/icon above the key indicates the function.

4.8.3 Control Keys

The control keys enable you to navigate between the basic screens, the menu screen and the data screens.

Press the right-hand key to change the language on the display unit.

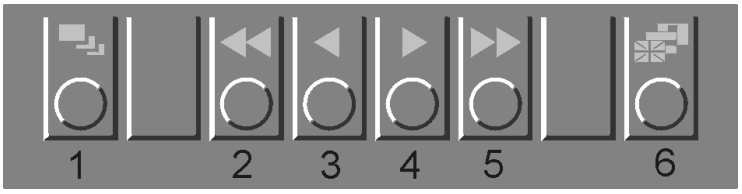


Figure 47: Control keys

1	*BASIC Display Key ▸ 74*	2	*MENU-Key Back ▸ 75*
3	*DATA-DISPLAY-Key-Back ▸ 75*	4	*DATA-DISPLAY-Key-Forward ▸ 76*
5	*MENU-Key Forwards ▸ 76*	6	*LANGUAGE-Key ▸ 76*

4.8.4 Keyboard and Machine Keys

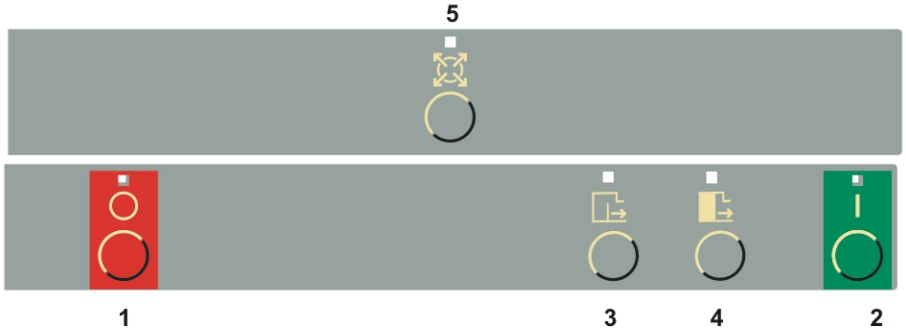


Figure 48: Keyboard and machine keys

1	*STOP Key on the Operator Panel ▸ 77*	2	*START Key on the Operator Panel ▸ 77*
3	*"Empty Machine" Machine Button ▸ 77*	4	*"Empty R/S Module" Machine Button ▸ 78*
5	*Machine Key "Destress" ▸ 78*		

The machine keys enable you to operate the basic functions of the machine.

If a function is triggered via a machine key, the corresponding LED flashes while the function is being performed.

Otherwise the LED remains lit up as long as the key remains depressed, but for at least 2 seconds.

4.8.5 LED's for CPU Status on the Basic Module of the Control System

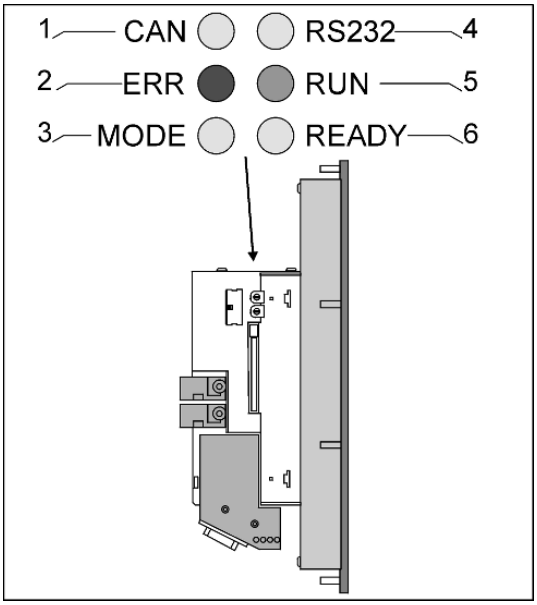


Figure 49: LED's for CPU status, on the basic module of the control system

CPU Status, Display on the Basic Module of the Control Unit ▸ 81

4.8.6 Main Switch

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

WARNING

Elements subject to external voltage may still be live even with the main switch OFF!

Injury due to electric shock.

- ▶ Prior to commencing work, the elements that are subject to external voltage must be isolated.
- ▶ This isolation procedure may only be carried out by a qualified electrician.

CAUTION

The machine will run down in an uncontrolled manner if the main switch is turned off during operation!

The machine may become damaged.

- ▶ The main switch may be only operated with the machine at a standstill.

Description of Function

1. Use the main switch to turn the operating power ON and OFF.

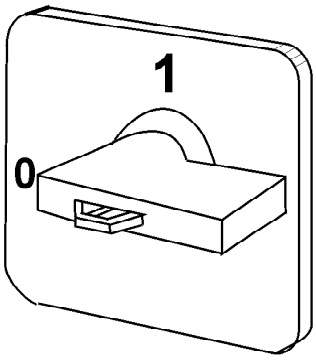


Figure 50: OFF position OFF, position "0"

⇨ The machine is without power. The machine cannot be started.

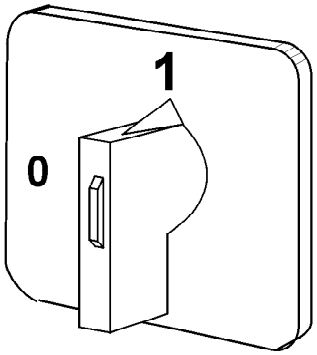


Figure 51: ON position

2. ON, position "1"

⇨ Operating position

4.8.7 Emergency Shut-Down Button

Figure 52: EMERGENCY SHUT-DOWN button

Description of Function

Orientation EMERGENCY SHUT-DOWN buttons are intended to be used in an emergency. When an EMERGENCY SHUT-DOWN button is actuated all drives are immediately shut down. This enables danger from moving machine parts to be avoided as quickly as possible.

1. Actuated

⇨ The machine is put into a safe state as quickly as possible.

⇨ The machine cannot be started as long as the EMERGENCY SHUT-DOWN button is actuated.

2. Released

⇨ Operating conditions.

4.9 T1000V Frequency Converter, Operating Unit

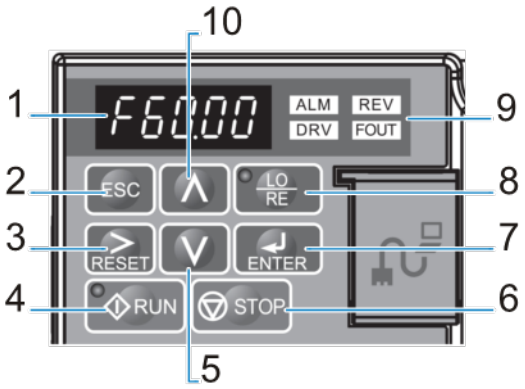


Figure 53: T1000V frequency converter, operating unit

1 *Data Display, Frequency Converter ▸ 57*	2 *ESC key, Frequency Converter ▸ 57*
3 *RESET Key, Frequency Converter ▸ 57*	4 *RUN Key, Frequency Converter ▸ 58* *RUN LED, Frequency Converter ▸ 58*
5 *Down Arrow Key, Frequency Converter ▸ 58*	6 *STOP key, Frequency Converter ▸ 58*
7 *ENTER Key, Frequency Converter ▸ 59*	8 *LOCAL/REMOTE Key, Frequency Converter ▸ 59* *LO-RE-LED, Frequency Converter ▸ 59*
9 *ALM LED, Frequency Converter ▸ 59* *REV LED, Frequency Converter ▸ 60* *DRV LED, Frequency Converter ▸ 60*	10 *Up Arrow Key, Frequency Converter ▸ 61*

FOUT LED, Frequency Converter ▸ 60

4.10 Functions of the Program Keys

4.10.1 DIRECT Key, Forward

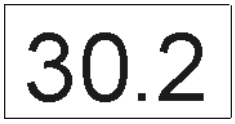


Figure 54: Direct key forward

Description of Function

Prerequisites Make sure that the criteria are obeyed:

✓ This key is not included in all control systems.

1. Use the "DIRECT next key" to go to the configured data screen.

You can use the "DIRECT next key" to go directly to a frequently needed data screen. The data screen number indicates which screen the system will go to. The first program key is always assigned.

4.10.2 POINTER Key Back

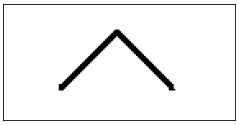


Figure 55: Pointer key back

Description of Function

Use the "POINTER key back" to mark the previous menu in the menu-overview. The previous input or list field is marked in the data screen.

4.10.3 ENTER-Key

Figure 56: Enter key

Description of Function

Prerequisites Make sure that the criteria are obeyed:

✓ This programming key does not appear on the display until the control system has ascertained that the malfunction has been remedied.

1. Use the "ACKNOWLEDGE-key" to acknowledge a message or a displayed malfunction.

4.10.4 DIRECT-Key Back

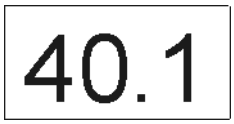


Figure 57: DIRECT-key back

Description of Function

Use the "DIRECT-key back" to jump from the basic screen to the data screen last shown. The occupancy is always on the second program key. After switching on the machine or when the last screen displayed can no longer be displayed, an empty box appears (no function).

4.10.5 POINTER Key Forward

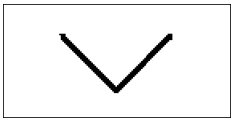


Figure 58: POINTER key forward

Description of Function

Use the POINTER key forward to mark the next menu in the menu-overview. The next input or list field is marked in the data screen.

4.10.6 HELP-Key

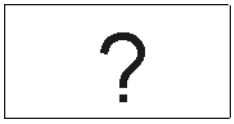


Figure 59: HELP-key

Description of Function

If there is context-sensitive help for a malfunction screen, it can be displayed by means of the "HELP-key".

4.10.7 MENU Overview Key

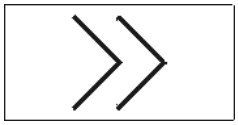


Figure 60: MENU overview key

Description of Function

The "MENU overview key" is used to show the menu overview.

4.10.8 START OF LIST Key

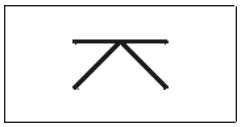


Figure 61: START OF LIST key

Description of Function

Prerequisites Make sure that the criteria are obeyed:

✓ The LIST length exceeds the monitor screen length.

1. Use the “START OF LIST” key to jump to the start of the list.

4.10.9 MINUS-Key

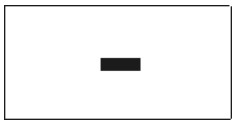


Figure 62: MINUS-key

Description of Function

Use the “MINUS” key to reduce the value. The text box, wherein changes are made, has a negative image. The changed value becomes active for the control system only after it has been confirmed by the "ENTER" key. For most setting values, the “MINUS” key only appears, if the correct password was previously entered.

4.10.10 MINUS-ENTER-Key

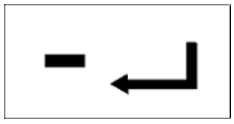


Figure 63: MINUS-ENTER-key

Description of Function

Use the "MINUS-ENTER-key" to reduce and immediately save the value. The "MINUS-ENTER-key" is only shown with variable values which are accepted immediately. i.e. the transfer of the value need not be explicitly confirmed with the ENTER-key.

4.10.11 PASSWORD-INSERT Key

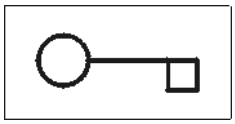


Figure 64: PASSWORD-INSERT key

Description of Function

Use the "PASSWORD-INSERT-key" to display the first screen for entering the password.

4.10.12 PASSWORD-CANCELLING Key

Figure 65: PASSWORD-CANCELLING key

Description of Function

Use the "PASSWORD-CANCELING-key" to cancel the active password authorization

4.10.13 END OF LIST Key

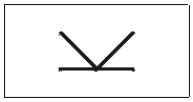


Figure 66: END OF LIST key

Description of Function

Prerequisites Make sure that the criteria are obeyed:

✓ The LIST length exceeds the monitor screen length.

1. Use the “END OF LIST” key to jump to the end of the list.

4.10.14 PLUS-Key

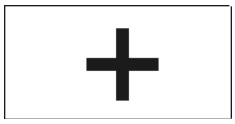


Figure 67: PLUS-key

Description of Function

Use the "PLUS" key to increase the value. The text box, wherein changes are made, has a negative image.The changed value becomes active for the control system only after it has been confirmed by the "ENTER" key. For most setting values, the “PLUS” key only appears, if the correct password was previously entered.

4.10.15 PLUS-ENTER-Key

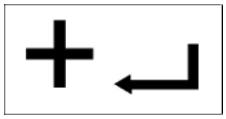


Figure 68: PLUS-ENTER-key

Description of Function

Use the "PLUS-ENTER-key" to increase and immediately save the value. The PLUS-ENTER-key is only shown with variable values which are accepted immediately. i.e. the transfer of the value need not be explicitly confirmed with the ENTER-key.

4.10.16 SCREEN-Key Back

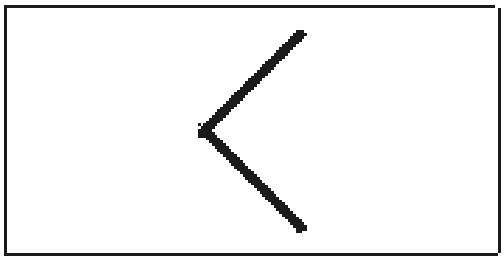


Figure 69: SCREEN-key back

Description of Function

Use the "SCREEN-key back" to display the previous screen. These may be data screens, basic screens or malfunction screens. The menu-overview displays the last data screen of the preceding menu.

4.10.17 DELETE Key

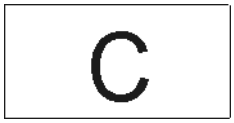


Figure 70: DELETE key

Description of Function

Use the “DELETE” key to delete a changed entry. The previously stored value will be displayed again. This is not possible for keys where the chosen value is effective immediately.

4.10.18 SCREEN-Key Scroll Forwards

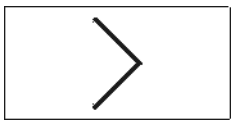


Figure 71: SCREEN-key scroll forwards

Description of Function

Use the SCREEN-key forward to display the next screen. The menu-overview displays the first data screen of the menu.

4.10.19 ENTER-Key

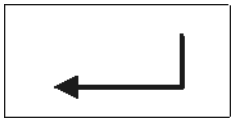


Figure 72: ENTER-key

Description of Function

Press the "ENTER-key" to accept the entry/change of value, i.e. the altered value is saved.

4.11 Control Keys

4.11.1 BASIC Display Key

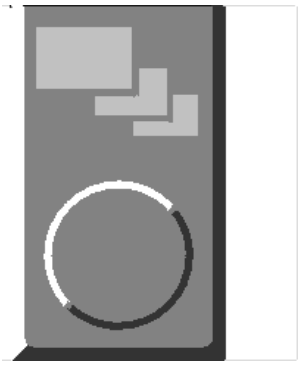


Figure 73: BASIC display key

Description of Function

Use the "BASIC-DISPLAY-key" to jump from the menu screen or some data screen into the overview (standard basic screen or malfunction screen).

4.11.2 MENU-Key Back

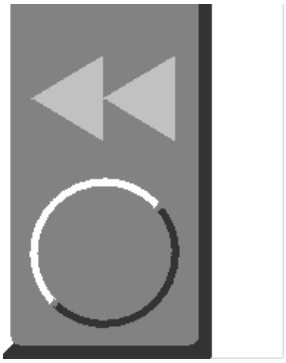


Figure 74: MENU-key back

Description of Function

In the menu overview the "MENU-key back" marks the preceding line of the menu or displays the menus screen. After the first line of the menu the last line of the menu is displayed.

4.11.3 DATA-DISPLAY-Key-Back

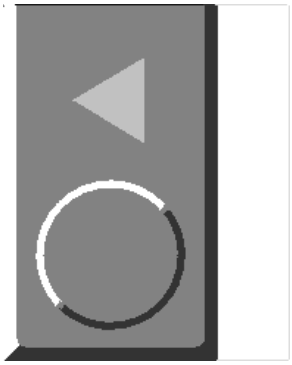


Figure 75: DATA-DISPLAY-key-back

Description of function

The "DATA-DISPLAY-key-backward" displays the previous data screen. After the first data screen the menu overview is displayed again.

4.11.4 DATA-DISPLAY-Key-Forward

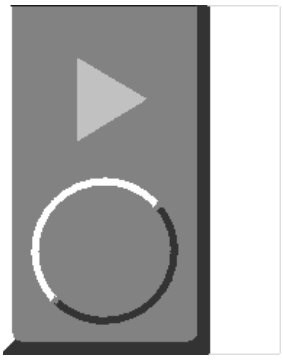


Figure 76: DATA-DISPLAY-key-forward

Description of Function

The "DATA-DISPLAY-key-forward" displays the next data screen. After the last data screen the menu overview is displayed again.

4.11.5 MENU-Key Forwards

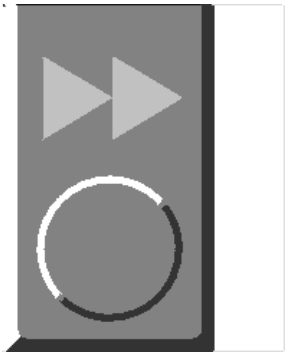


Figure 77: MENU-key forwards

Description of Function

In the menu overview the “MENU-key forwards” marks the next line of the menu or displays the menu screen. After the last line of the menu, the first line of the menu is displayed.

4.11.6 LANGUAGE-Key

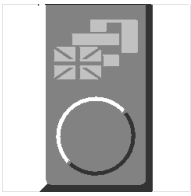


Figure 78: Language key

Description of Function

Use the "LANGUAGE key" to go to the next configured language.

4.12 Keyboard and Machine Keys

4.12.1 STOP Key on the Operator Panel

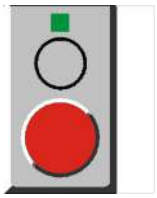


Figure 79: Stop key

Identifying feature: Red

Description of Function

The "STOP" key stops production mode or the currently active process.

4.12.2 START Key on the Operator Panel

Figure 80: Start key

Identifying feature: Green

Description of Function

The START key starts the production mode. If the machine cannot be started the cause is shown as an error message. In service mode the "START" key starts the currently selected function.

4.12.3 “Empty Machine” Machine Button

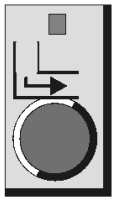


Figure 81: Empty button

Description of Function

– The emptying option can only be selected in automatic mode. The emptying process is not performed until the production mode is active.

No more material is being requested by the preceding machine. Normal production is continued. If the fill level falls below the minimum acceptable level, the feed fan is deactivated. In order to finish the emptying process, the button must be pressed a second time.The LED goes out and the UNImix continues with normal production.

4.12.4 “Empty R/S Module” Machine Button

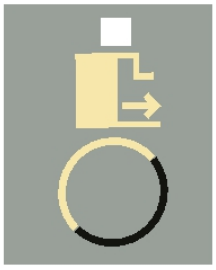


Figure 82: "Empty R/S module” machine button

Description of Function

This button is used for emptying the module. Once the emptying process is activated, no more material is requested by the spiked lattice. If the light barrier associated with the minimum fill level of the R/S module responds, the machine remains active for a maximum of 5 minutes (pure running time). Subsequently, the compression rollers and feed rollers are deactivated and the machine adopts the “Empty” status. During the emptying process, the corresponding LED flashes.

4.12.5 Machine Key "Destress"

Figure 83: Machine key "destress"

Description of Function

The purpose of this function is to clear blockages. It can only be executed when the machine is in the “ready for operation” state. The function remains active, all the while the button is pressed. The associated LED remains lit, for as long as the button is pressed. With this function, the feed belt runs at a high speed, while the

spiked lattice moves slowly in reverse. In the R/S module, the feed and compression rollers rotate at creep speed in the direction opposite to the “production” direction. As soon as the button is released, all drives stop.

4.13 LED Status Display

4.13.1 LED Electric Power Supply

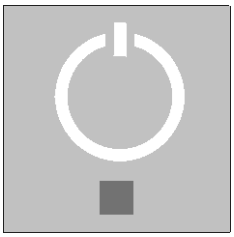


Figure 84: LED electric power supply

Type of element: LED

Display State

– Does not light up

There is no control voltage.

The main switch is OFF.

– Lights up

There is control voltage.

The main switch is ON.

– Flashing

An interruption in the power supply has caused the control system to switch OFF.

After switching ON, the LED flashes until a control key or machine key is actuated.

4.13.2 LED Automatic Mode (Production Mode)

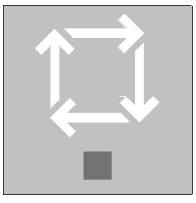


Figure 85: LED automatic mode (production mode)

Type of element: LED

Display State

– Does not light up

Production mode has stopped.

– Lights up

Machine runs in automatic mode (production mode).

State of the machine= Production mode

– Flashing

Going into production mode.

4.13.3 LED "Alert

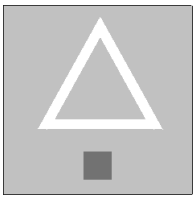


Figure 86: LED "Alert"

Type of element: LED

Lights up if there is an alert.

4.13.4 LED "Malfunction"

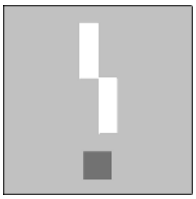


Figure 87: LED "Malfunction"

Type of element: LED

Lights up if there is a malfunction.

4.13.5 LED Call "Service Personnel

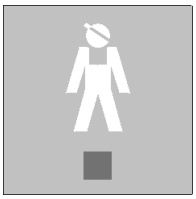


Figure 88: LED call "service personnel"

Type of element: LED

Lights up if you have to call service personnel to rectify a malfunction.

4.14 LED's for CPU Status on the Basic Module of the Control System

4.14.1 CPU Status, Display on the Basic Module of the Control Unit

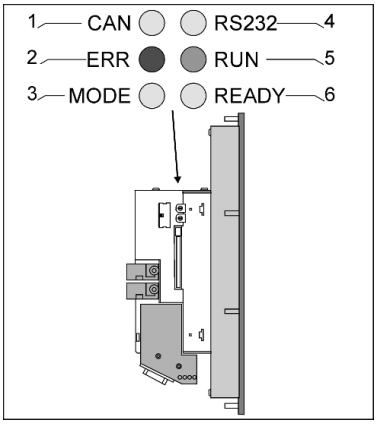


Figure 89: CPU status, display on the basic module of the control unit

Type of element: 6 LEDs

The six status LEDs indicate the operating mode of the control unit.

Display State

1 Flashing, Yellow

Data communication from or to the CAN controller.

2 Lights up, Red

Service mode is active, e.g. for software download.

3 Lights up, Yellow

Software download into Flash-PROM is running.

4 Flashing, Yellow

Indicates whether data is being received or sent at the RS232-interface.

5 Lights up, Green

RUN.

6 Lights up, Yellow

Service mode is active.

4.15 Display Screens Operator Panel

4.15.1 Structure of Menu and Data Screens

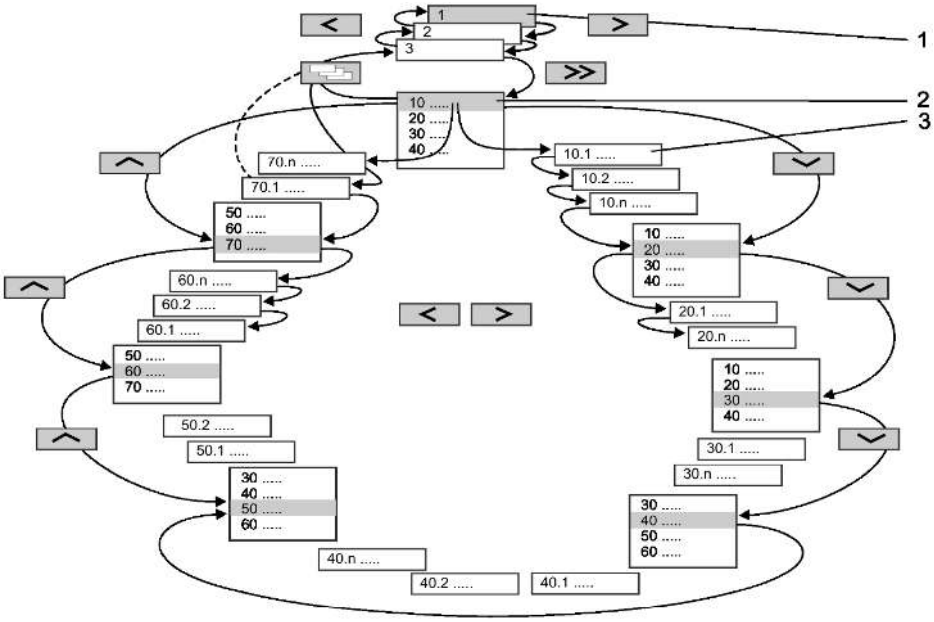


Figure 90: Structure of menuand data screens

The screen indicates which keys can be used to select the various screens on the display unit.

There are 3 types of displays:

Main screen 1:

Either an overview display or an error message will be shown if an error prevails. There might be more than one overview display or more than one error at the same time.

Menu overview 2:

Data displays are grouped in menus. From the menu overview the requested menu may be selected.

Data screen 3:

In data displays, actual values are shown, settings are changed, and test functions are started.

Fault screen:

In the event of a fault, the corresponding fault screen is shown on the main screen. The description of the fault is indicated at the top.

The fault code, the approximate location on the machine and the particular fault among the impending faults (e.g. 2.of 3 : 2/3) are displayed on the left.

The exact location is indicated by a flashing rectangle on the large screen.

Overview screen:

If there is no pending fault, the overview screen, containing the most important current data of the machine, is displayed.

There may be several overview screens. In data screen 40.2, the overview screen that is normally displayed can be configured.

4.15.2 List of Menu and Data Screens

No.	Menu/data screens	Authorization	Page
10	**10 Production**	--	*Menu 10: "10 Production"* ▸ *88*
10.1	Settings	Change with password.	*Menu 10: "10 Production"* ▸ *88*
10.1	Settings	Change with password.	*Menu 10: "10 Production"* ▸ *88*
10.2	Efficiency	Change with password.	*Menu 10: "10 Production"* ▸ *88*
11	**Machine Functions**	--	*Menu 11: "11 Machine Functions"* ▸ *92*
11.1	Machine Functions	No password	*Menu 11: "11 Machine Functions"* ▸ *92*
30	**30 Information, general**	--	*Menu 30: "30 Information, General"* ▸ *93*
30.1	Machine information	No password/Change in service mode	*Menu 30: "30 Information, General"* ▸ *93*
30.2	Actual values for mixer	No password	*Menu 30: "30 Information, General"* ▸ *93*
30.3	Actual values for feed module	No password	*Menu 30: "30 Information, General"* ▸ *93*
30.4	Input overview	No password	*Menu 30: "30 Information, General"* ▸ *93*
30.5	Outputs	No password	*Menu 30: "30 Information, General"* ▸ *93*
30.6	Frequency converter	No password	*Menu 30: "30 Information, General"* ▸ *93*

No.	Menu/data screens	Authorization	Page
31	**31 Information protocols / statistics**	--	*Menu 31: "31 Information Protocols / Statistics"* ▸ *97*
31.1	Current warnings	--	*Menu 31: "31 Information Protocols / Statistics"* ▸ *97*
31.2	Current maintenance warnings	No password	*Menu 31: "31 Information Protocols / Statistics"* ▸ *97*
31.3	Current malfunctions	--	*Menu 31: "31 Information Protocols / Statistics"* ▸ *97*
31.4	Events occurred	No password	*Menu 31: "31 Information Protocols / Statistics"* ▸ *97*
31.5	Event statistics	--	*Menu 31: "31 Information Protocols / Statistics"* ▸ *97*
31.6	Delete protocols / statistics	Change with password	*Menu 31: "31 Information Protocols / Statistics"* ▸ *97*
40	**40 Setup values, general**	--	*Menu 40: "40 Setup Values, General"* ▸ *100*
40.1	Date / times	Changing settings with password/Service mode	*Menu 40: "40 Setup Values, General"* ▸ *100*
40.2	Languages	Change with password	*Menu 40: "40 Setup Values, General"* ▸ *100*
40.3	Setup values pressure	Change with password	*Menu 40: "40 Setup Values, General"* ▸ *100*
40.4	Setup values for mixer	Change with password	*Menu 40: "40 Setup Values, General"* ▸ *100*
40.5	Set-up values for feed module	Change with password	*Menu 40: "40 Setup Values, General"* ▸ *100*
41	**41 Setup values, configurations**	--	*Menu 41: "41 Setup Values, Configurations"* ▸ *104*

No.	Menu/data screens	Authorization	Page
41.1	Configurations	Change to "service mode"	*Menu 41: "41 Setup Values, Configurations"* ▸ *104*
80	**80 Operating mode**	--	*Menu 80: "80 Operating Mode"* ▸ *106*
80.1	Switch operating mode	Change (maintenance)	*Menu 80: "80 Operating Mode"* ▸ *106*
81	**81 IO tests**	--	*Menu 81: "81 IO Tests"* ▸ *107*
81.1	Inputs	Change in “Service mode”	*Menu 81: "81 IO Tests"* ▸ *107*
81.2	Outputs	Change in “Service mode”	*Menu 81: "81 IO Tests"* ▸ *107*
82	**82 Functional tests**	--	*Menu 82: "82 Functional Tests"* ▸ *109*
82.1	Conveyor belt, M21	Change in “Service mode”	*Menu 82: "82 Functional Tests"* ▸ *109*
82.4	Take-off roller, M24	Change in “Service mode”	*Menu 82: "82 Functional Tests"* ▸ *109*
82.5	Electric Travel cylinder M25	Change in “Service mode”	*Menu 82: "82 Functional Tests"* ▸ *109*
82.10	Electric Travel cylinder M33	Change in “Service mode”	*Menu 82: "82 Functional Tests"* ▸ *109*
82.11	Electric Travel cylinder M34	Change in “Service mode”	*Menu 82: "82 Functional Tests"* ▸ *109*
82.12	Distribution cylinder, Y1	Change in “Service mode”	*Menu 82: "82 Functional Tests"* ▸ *109*
83	**83 Endurance test**	--	*Menu 83: "83 Endurance Test"* ▸ *114*
83.1	Endurance test	Change in “Service mode”	*Menu 83: "83 Endurance Test"* ▸ *114*
84	**84 General test**	--	*Menu 84: "84 General Test"* ▸ *115*
84.1	Push-button and LED test	Change (maintenance)	*Menu 84: "84 General Test"* ▸ *115*

4.15.3 Overview Screen

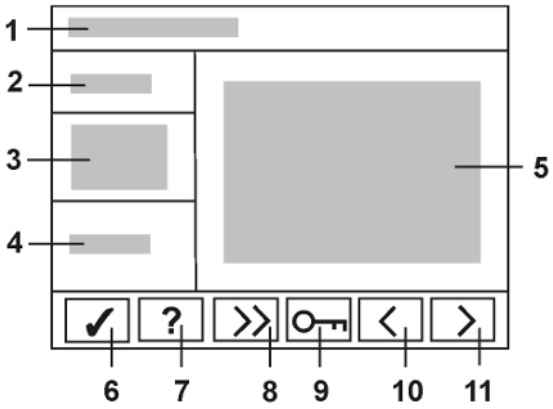


Figure 91: Overview screen

Example of a Message Display

One or several messages (malfunctions, warnings, events) are displayed on the display unit in the form of text and diagrams. If there are several messages pending simultaneously, these can be displayed individually.

1	Designation of the message.	2	Message code (e.g. error number).
3	Indicates graphically the general location of the event in the machine.	4	Shows the order and number of current messages. Example 2/3: The second message of a total of three sequential messages is currently shown.
5	Shows the exact location of an event. The location on the machine is highlighted by a flashing rectangle.	6	ACKNOWLEDGE key: For acknowledging the current fault.
7	HELP key to show additional help for the displayed event.	8	MENU key: to display the menu overview.
9	PASSWORD key: to display the password entry.	10	Mask back key: displays the previous message, if several events are reported.
11	MASK forward: displays the next message, if several events are reported.		

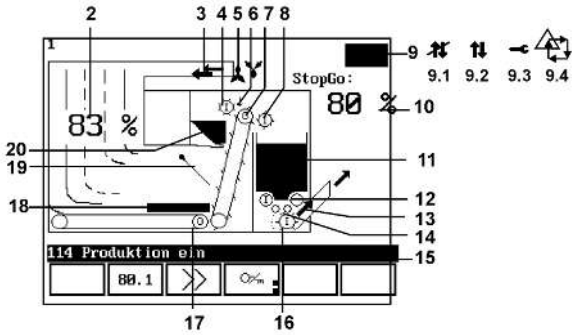


Figure 92: Overview screen for UNImix with R/S module

Overview Screen for UNImix with R/S Module

If there are no faults pending, the following overview screen is displayed first.

1	Screen number	2	Storage unit fill level (100 % => storage unit full)
3	Solid arrow => material is being requested.	4	Opening roller: “0” indicates no motion, “1” indicates motion.
5	Feed fan is running.	6	Direction of rotation for the opening roller.
7.	Spiked lattice: “0” indicates no motion, “1” indicates motion.	8	Take-off roller: “0” indicates no motion, “1” indicates motion.
9	Possible displays.	9.1	No network connection.
9.2	Network connection is OK.	9.3	Maintenance warning.
10	“Stop-go” percentage	11	Fill level in chute.
12	Compression rollers: “0” indicates no motion, “1” indicates motion.	13	Solid arrow => material is being delivered.
14	Information line.	15	Opening roller: “0” indicates no motion, “1” indicates motion.
16	Feed belt: “0” indicates no motion, “1” indicates motion.	17	Symbol no longer displayed: The fill level is below the minimum acceptable level.
18	Symbol is displayed: The limit switch for monitoring the position of the retaining rake has been triggered, i.e. the material has not been compacted sufficiently.	19	Symbol no longer displayed: The dynamic storage unit fill level is below the minimum acceptable value.

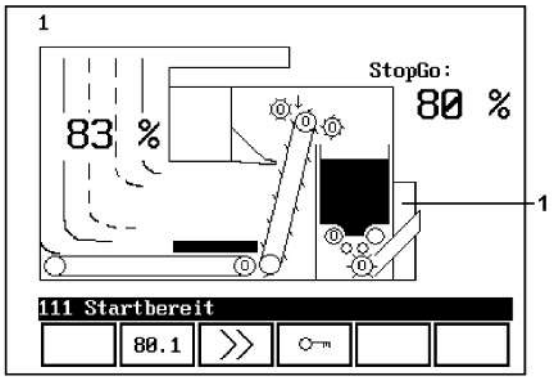


Figure 93: UNImix B 72 / B 76 with R/S module

UNImix B 72 / B 76 with R/S Module (Optionally with Foreign Fibre Separator, as well)

This screen is displayed, if a foreign fibre separator is available.

1	Symbol for foreign fibre separator.

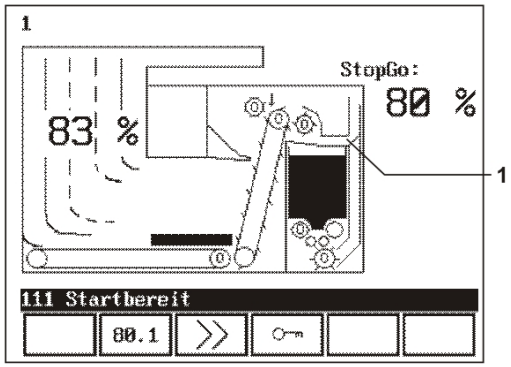


Figure 94: UNImix B 72 with R/S module and active bypassing

UNImix B 72 with R/S Module and Active Bypassing

This screen is displayed, if the bypass feature is active.

1	If the bypass mechanism is activated, the opening roller, feed rollers and compression rollers are stopped.

4.15.4 Menu 10: "10 Production"

Contains all production data for the machine but not shift-related data.

10.1 Settings

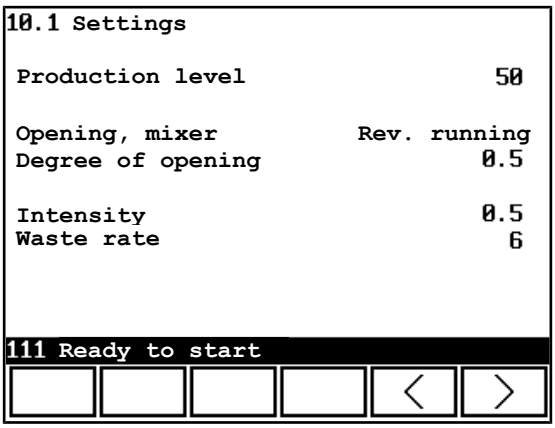


Figure 95: Data screen 10.1 Settings

Adjusting the grating (waste volume rate) ▸ *265*

This screen only appears if the “VarioSet” programming option has been set in data screen 40.5.

Production level:

Enter the required level. A higher value results in greater production and vice versa.

Default : 50

min. - max.: 20 (minimum production) - 100 (maximum production)

Fwd. running:

When running in the forward direction, the opening roller conveys material in the same direction as the spiked lattice.

Results in coarser opening of material but a higher production rate.

min. - max.: 500 – 610 min-1

Rev. running:

Results in finer opening of material but a lower production rate.

min. - max.: 70 – 150 min-1

Opening, mixer:

The degree of opening is directly related to the distance between the spiked lattice and the opening roller.

0.1 => lowest possible degree of opening, greatest possible distance between the opening roller and the spiked lattice, large tufts, fully extended piston.

1.0 => highest possible degree of opening, smallest possible distance between the opening roller and the spiked lattice, small tufts, fully retracted piston.

Default : 0.5

min. - max.: 0.1 - 1.0

Intensity:

The degree of opening of the material is affected by the speed of the opening roller. (1.0 => highest degree of opening, i.e. highest speed of opening roller.)

Default : 0.3

min. - max.: 0.1 - 1.0

Waste rate:

The type and volume of waste is affected by the grating setting. (10 => largest opening of the grating, and hence greatest volume of waste.

The composition of the waste must be taken into account when making the setting.)

Default : 5

min. - max.: 1 – 10

10.1 Settings

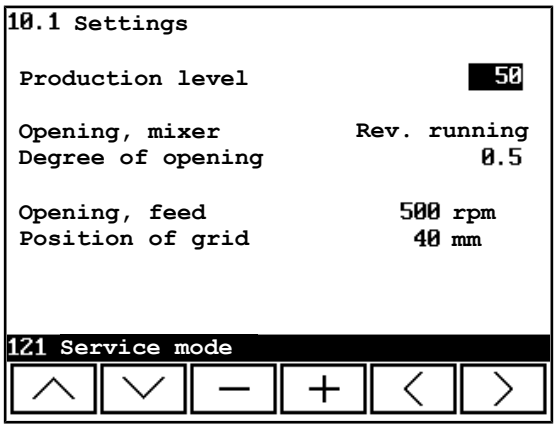


Figure 96: Data screen 10.1 settings

Adjusting the grating (waste volume rate) ▸ *265*

This screen only appears if the “VarioSet” programming option has been set in data screen 40.5.

Production level:

Enter the required level. A higher value results in greater production and vice versa.

Default : 50

min. - max.: 20 (minimum production) - 100 (maximum production)

Fwd. running:

When running in the forward direction, the opening roller conveys material in the same direction as the spiked lattice.

Results in coarser opening of material but a higher production rate.

min. - max.: 500 - 610 min-1

Rev. running:

Results in finer opening of material but a lower production rate.

min. - max.: 70 - 150 min-1

Opening, mixer:

The degree of opening is directly related to the distance between the spiked lattice and the opening roller.

0.1 => lowest possible degree of opening, greatest possible distance between the opening roller and the spiked lattice, large tufts, fully extended piston.

1.0 => highest possible degree of opening, smallest possible distance between the opening roller and the spiked lattice, small tufts, fully retracted piston.

Default : 0.5

min. - max.: 0.1 - 1.0

Opening, feed:

The speed of the opening roller can be altered with the PLUS and MINUS buttons.

Default : 600 min-¹

min. - max.: 500 – 1000 min-¹

Position of grid:

The type and volume of waste is affected. (Set the grating manually.)

Default : 55 mm

min. - max.: 5 – 100 mm

10.2 Efficiency

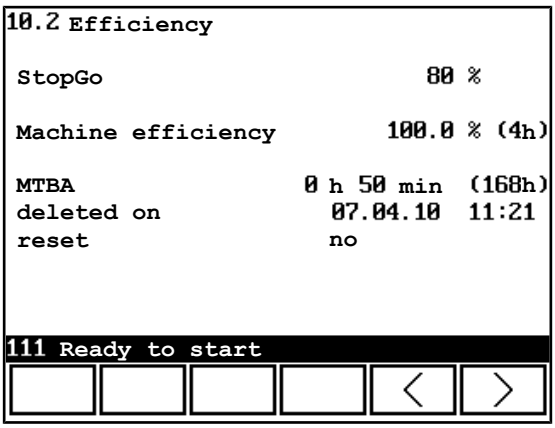


Figure 97: Data screen 10.2 Efficiency

StopGo:

The continuously-calculated percentage corresponding to the ratio of the total durations over which material is requested and is not requested, and based on the last 15 minutes at any given instant.

If the “stop-go” percentage is too low, the material delivery rate is too high. Reduce the production level.

10.1

Machine efficiency:

Continuously-calculated machine efficiency. (Calculation period in hours indicated in brackets.)

MTBA:

The calculation is performed continuously over 7 days. During this time period, the normal running time is continuously compared with the number of faults and evaluated. (MTBA = Mean Time Between Assistance)

deleted on:

The date and the time indicate when the recording was last deleted.

deleted on:

Yes: The values are reset.

4.15.5 Menu 11: "11 Machine Functions"

Contains shift related production data, such as efficiency and production.

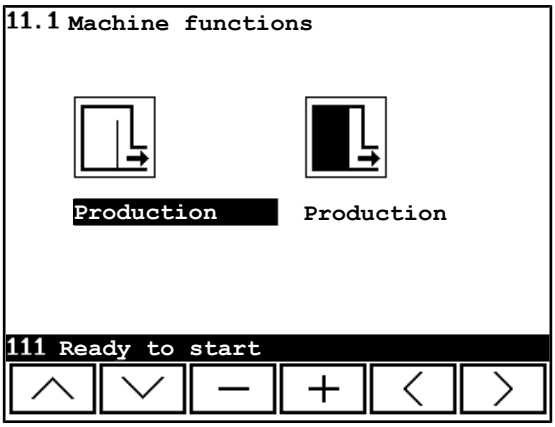


Figure 98: Data screen 11.1 Machine functions

11.1 Machine Functions Production

The machine is producing.

MachineEmptying

The machine can be emptied by activating this function.

The operating unit has a key which performs the same function.

Module emptying

The machine can be emptied by activating this function.

The operating unit has a key which performs the same function.

4.15.6 Menu 30: "30 Information, General"

Contains information on machine type, software release, statuses of the inputs and outputs.

30.1 Machine Information

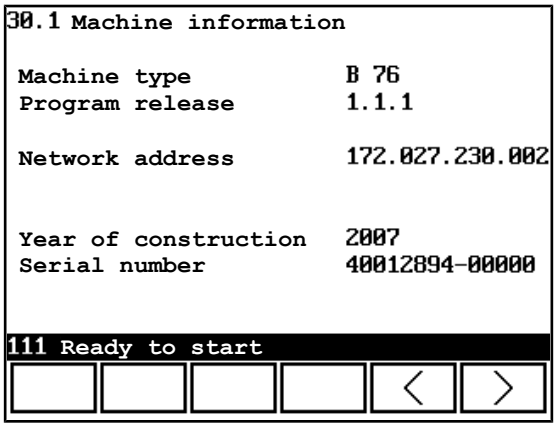


Figure 99: Data screen 30.1 Machine information

Information on the machine

Machine type:

Type designation based on the configuration in data screen 41.1.

Program release:

The program release used will be displayed.

Network address:

The network address for the corresponding machine is displayed.

If no network card is present, then the address “000” is displayed.

Year of construction:

The year of construction for the machine is entered by Rieter prior to delivery.

Following a change of software, entries can only be made in “Service mode”,

80.1 ▸ 106

Serial number:

The serial number of the machine is entered by Rieter prior to delivery.

The serial number uniquely identifies a machine and is important for orders.

Following a change of software, entries can only be made in “Service mode”,

80.1 ▸ 106

30.2 Actual Values for Mixer

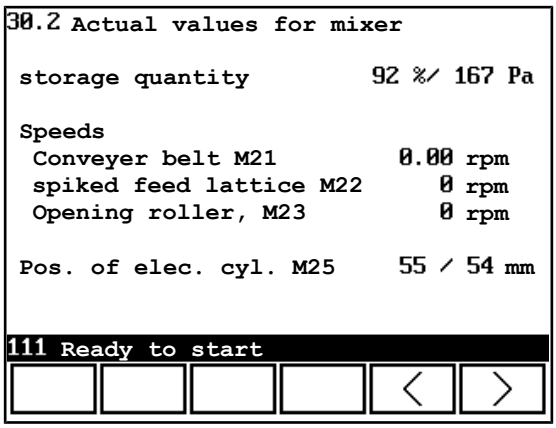

30.2 Actual values for mixer
storage quantity 92 %/ 167 Pa
Speeds
Conveyer belt M21 0.00 rpm
spiked feed lattice M22 0 rpm
Opening roller, M23 0 rpm
Pos. of elec. cyl. M25 55 / 54 mm
111 Ready to start

Figure 100: Data screen 30.2 Actual values for mixer

Current values of various machine elements

storage quantity:

The current fill level of the storage unit (measured by pressure sensors).

100% => storage unit full

Speeds

Conveyer belt M21:

The speed is displayed in rpm.

spiked feed lattice M22:

The speed is displayed in rpm.

Opening roller, M23:

The speed is displayed in rpm.

Pos. of elec. cyl., M25:

The position of the electric cylinder is displayed in mm.

30.3 Actual Values for Feed Module

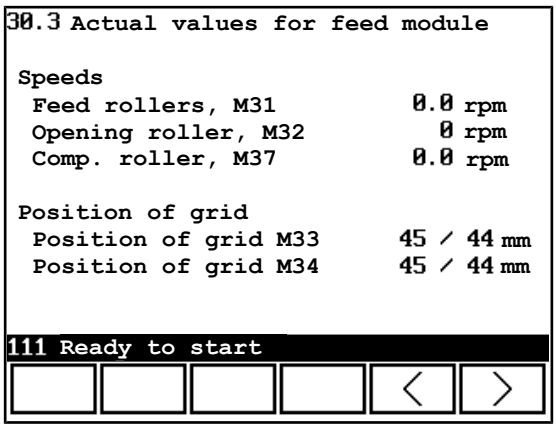

30.3 Actual values for feed module
Speeds
Feed rollers, M31 0.0 rpm
Opening roller, M32 0 rpm
Comp. roller, M37 0.0 rpm
Position of grid
Position of grid M33 45 / 44 mm
Position of grid M34 45 / 44 mm
111 Ready to start

Figure 101: Data screen 30.3 Actual values for feed module

Feed rollers, M31:

The speed of the feed rollers is displayed.

Opening roller, M32:

The speed of the opening roller is displayed.

Comp. roller, M37:

The speed of the compression rollers is displayed.

Position of grid M33:

Left-hand side of machine: The position of the electrical-cylinder piston rod for setting the grating is displayed. (Current and target values.)

Position of grid M34:

Right-hand side of machine: The position of the electrical-cylinder piston rod for setting the grating is displayed. (Current and target values.)

30.4 Input Overview

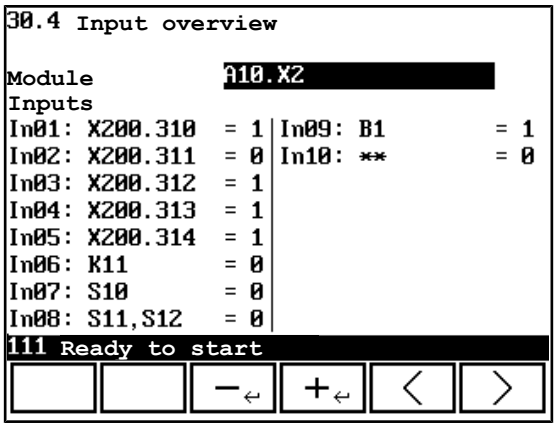


Figure 102: Data screen 30.4 Input overview

The status of each control unit input can be checked (“0” indicating no voltage and “1” indicating voltage is present) with this data screen.

Module:

Press the + or - keys to choose the I/O module, for which the statuses of the individual inputs are to be displayed.

Inputs:

For each input, the status “0” denoting “low” (no voltage present) or “0” denoting “high” (voltage present) is displayed.

30.5 Outputs

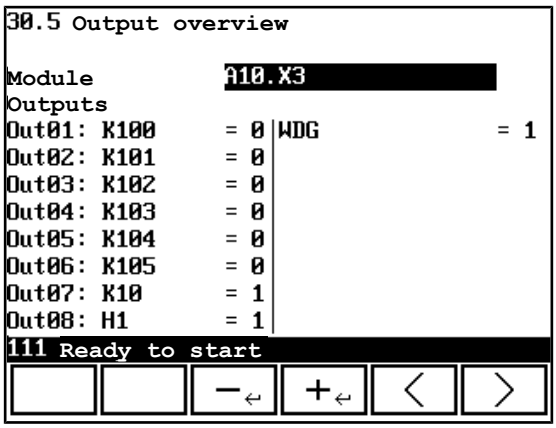


Figure 103: Data screen 30.5 Output overview

The status of each control unit output can be checked (“0” indicating no voltage and “1” indicating voltage is present) with this data screen

Module:

Press the + or - keys to choose the I/O module, for which the statuses of the individual outputs are to be displayed.

Outputs:

For each output, the status “0” denoting “low” (no voltage present) or “0” denoting “high” (voltage present) is displayed.

30.6 Frequency Converter

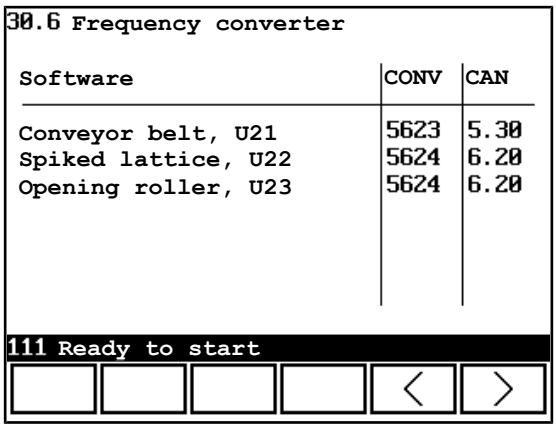


Figure 104: Data screen 30.6 Frequency converter

Setting the T1000V frequency converter ▸ 282

The software versions of the frequency converters and the CAN communications cards are displayed.

4.15.7 Menu 31: "31 Information Protocols / Statistics"

Contains protocols and statistics

31.1 Current Warnings

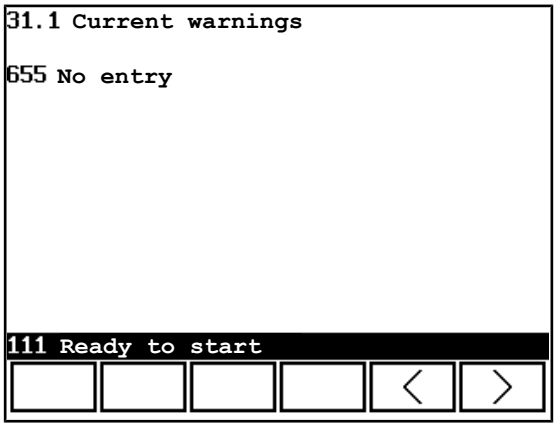


Figure 105: Data screen 31.1 Current warnings

All current warnings are displayed chronologically with code, message text (summary) and date/time of occurrence.

31.2 Current Maintenance Warnings

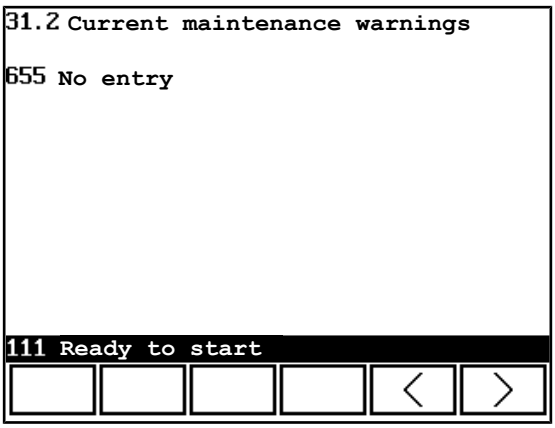


Figure 106: Data screen 31.2 Current maintenance warnings

Currently pending maintenance warnings are displayed chronologically with code, message text (brief summary) and entry date/time. The machine production will not be interrupted.

Deleting warnings

Warnings that are no longer pending are deleted automatically.

31.3 Current Malfunctions

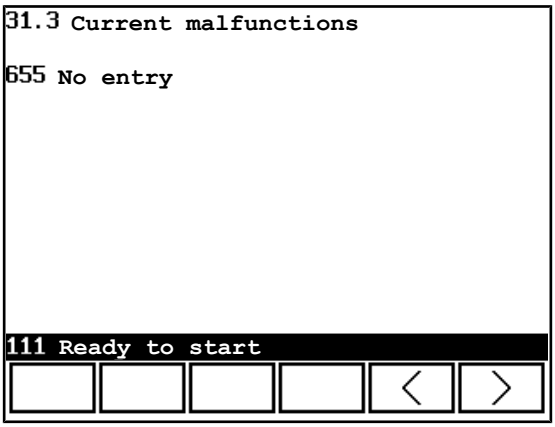


Figure 107: Data screen 31.3 Current malfunctions

A maximum of 100 currently pending faults are displayed chronologically with code, text message (brief summary) and date/time of occurrence.

31.4 Events Occurred

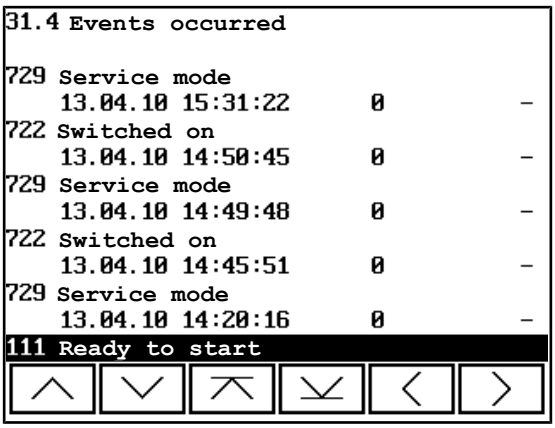


Figure 108: Data screen 31.4 Events occurred

A maximum of 100 most recent events, such as faults, warnings, maintenance warnings, messages, etc., are displayed chronologically with code, message text (brief summary), entry date/time and duration (h:m:s).

Entries

If 100 entries are recorded, the oldest entry will always be overwritten.

31.5 Event Statistics

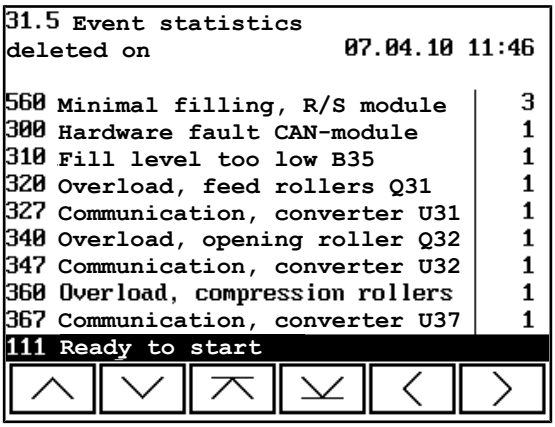

31.5 Event statistics
deleted on 07.04.10 11:46
560 Minimal filling, R/S module 3
300 Hardware fault CAN-module 1
310 Fill level too low B35 1
320 Overload, feed rollers Q31 1
327 Communication, converter U31 1
340 Overload, opening roller Q32 1
347 Communication, converter U32 1
360 Overload, compression rollers 1
367 Communication, converter U37 1
111 Ready to start

Figure 109: Data screen 31.5 Event statistcs

List of the most important events (alarms and messages) and information on how often these events have occurred. Only those events that have occurred at least once since the last delete are displayed.

The entries in the events counter can be deleted in data screen 31.6.

31.6 Delete protocols / statistics

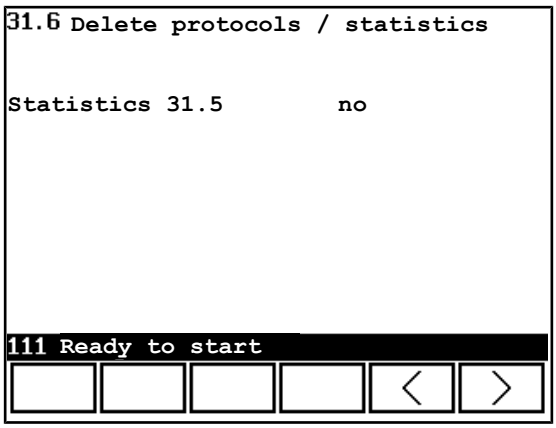


Figure 110: Data screen 31.6 Delete protocals / statistics

Allows log files to be deleted in data screen 31.5.

4.15.8 Menu 40: "40 Setup Values, General"

Furnishes settings, such as time, units, and languages.

40.1 Date / Times

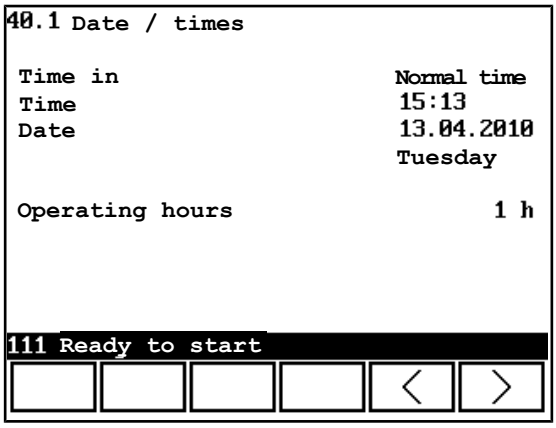


Figure 111: Data screen 40.1 Date / times

Changing from standard time to summer time ▸ 138

Time in:

For switching between daylight saving time and standard time

Time:

Hours/Minutes entry

Date:

Day/Month/Year entry

Operating hours:

Setting the CPU operating hours counter, e.g. after replacing the CPU or loss of data.

Following a change of software, entries can only be made in "Service mode".

80.1 ▸ 106

40.2 Languages

Figure 112: Data screen 40.2 Languages

Change the language ▸ 129

The required languages are selected with "Yes".

These languages can then be selected with the "LANGUAGE SELECTION" key. English and German cannot be deactivated.

40.3 Setup Values Pressure

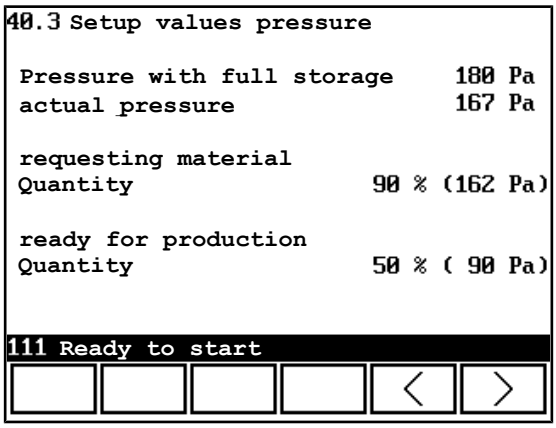

40.3 Setup values pressure
Pressure with full storage 180 Pa
actual pressure 167 Pa
requesting material
Quantity 90 % (162 Pa)
ready for production
Quantity 50 % (90 Pa)
111 Ready to start

Figure 113: Data screen 40.3 Setup values pressure

Setting the fill height

Pressure with full storage:

Maximum fill level of the storage unit. If exceeded, the "Request Material" system signal is reset.

actual pressure:

Current pressure in the storage unit.

requesting material:

Fill level, at which the machine requests material again. If the storage unit is full, the "Request Material" signal is reset.

100% => full storage unit

Default : 90 %

min. - max.: 50 - 99 %

ready for production:

Fill level, at which the machine can produce again (full storage). Only after the start procedure.

100% => full storage unit

Default : 50 %

min. - max.: 50 - 100 %

40.4 Setup Values for Mixer

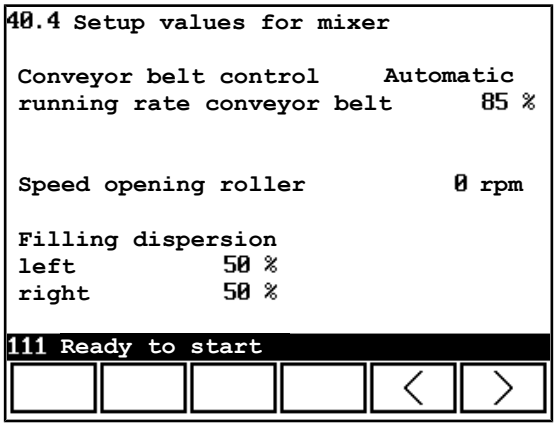

40.4 Setup values for mixer
Conveyor belt control Automatic
running rate conveyor belt 85 %
Speed opening roller 0 rpm
Filling dispersion
left 50 %
right 50 %
111 Ready to start

Figure 114: Data screen 40.4 Setup values for mixer

Conveyor belt control:

automaticThe ratio of the speeds of the feed belt and the spiked lattice is constant.

Default : 85 %

min. - max.: 75 - 90 %

manualThe feed belt speed can be entered manually.

Default : 80 %

min. - max.: 5 - 100 %

Speed of the opening roller when running in the reverse direction:

min. - max.: 70 – 610 rpm

Speed of the opening roller when running in the forward direction:

min. - max.: 70 – 610 rpm

Filling dispersion:

right:

left:

The filling process on the right/left can be affected by the flap (relevant to the B 76 only).

Default : 50 %

min. - max.: 20 - 80 %

40.5 Set-Up Values for Feed Module

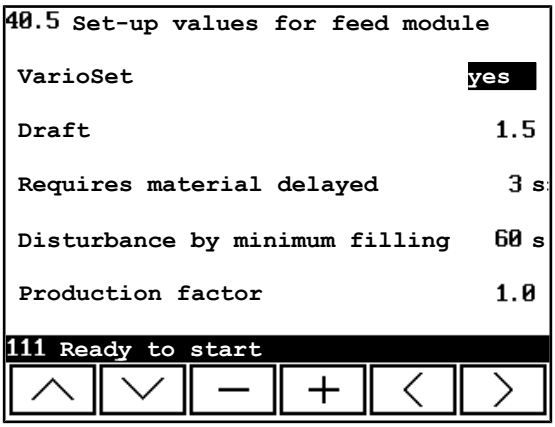


Figure 115: Data screen 40.5 Set-up values for feed module

Light barriers

VarioSet:

Normally, VarioSet is used

"Yes": VarioSet is activated

"No": VarioSet is not activated

Draft:

The draft between the compression rollers and the feed rollers can be adjusted.

Default : 1.5

min. - max.: 1.4 - 1.8

Requires material delayed:

Default : 10 s

min. - max.: 1 – 100 s

Disturbance by minimum filling:

Default : 60 s

min. - max.: 1 – 100 s

Production factor:

To ensure as uniform as possible filling of the feet chute in the module, the module's production may be increased or decreased if required. (Low setting value = lower production of the module).

Default : 1.0

min. - max.: 0.5 - 2.0

4.15.9 Menu 41: "41 Setup Values, Configurations"

Orientation Configuration of the machine parameters.

41.1 Configurations

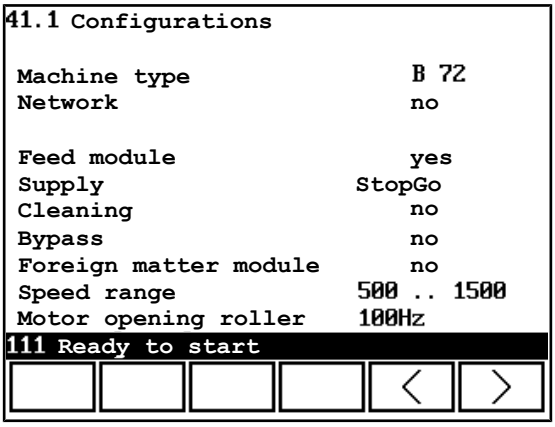


Figure 116: Data screen 41.1 Configurations

Changes are only possible in "service mode", data screen 80.1.

Machine type:

1. Select the machine type according to the nameplate.

Network

1. Select "No". The machine is not connected to a network. (No display in data screen 30.1).
2. Select "Yes". The machine is connected to a network. (Display in data screen 30.1).

The address is entered at the control unit. Refer to electrical circuit diagram for the address. (Display of Ethernet interface in data screen 30.1).

Feed module

1. Select "Yes".
   ⇨ If "No" is entered, the following text will not be displayed.

Supply

Determine the type of machine control for material supply to the next machine downstream.

StopGo

The feed rollers in the UNImix are switched on or off with a pressure switch in the downstream machine.

1. Select this type of machine control unit if the machine is not used for feeding the cards or for production rates of less than 300 kg/h.

4 levels

1. Select this type of machine control unit if the UNIcontrol is used as the control unit in the blow room.

The feed rollers are switched on or off with a pressure switch at the downstream machine and in the selected production level.

10.1 ▸ 88

These signals are analysed. The machine production at the selected production level is set so that activation and deactivation of the feed roller is reduced to a minimum.

UNIcontrol carries out the calculations for the relevant operating mode.

Cleaning

– "Yes": The machine is equipped with a cleaning section in the vicinity of the opening roller.
– "No": The machine has no cleaning section in the vicinity of the opening roller. (This can only be bypassed using the system designed for this purpose.)

Bypass

– "Yes": Bypass available.
– "No": Bypass not available.

Foreign matter module

– "Yes": A module for detecting foreign matter is available.
– "No": There is no module for detecting foreign matter.

Speed range

– 500 ... 1500 rpm at 100 Hz
– 500 ... 1500 rpm at 50 Hz
– 500 ... 1000 rpm at 50 Hz

Motor type configuration 50 Hz or 100 Hz according to rating plate on the installed opening roller motor.

Motor type of opening roller

– Adjustable to 50 Hz or 100 Hz

4.15.10 Menu 80: "80 Operating Mode"

Change of operating mode for maintenance functions.

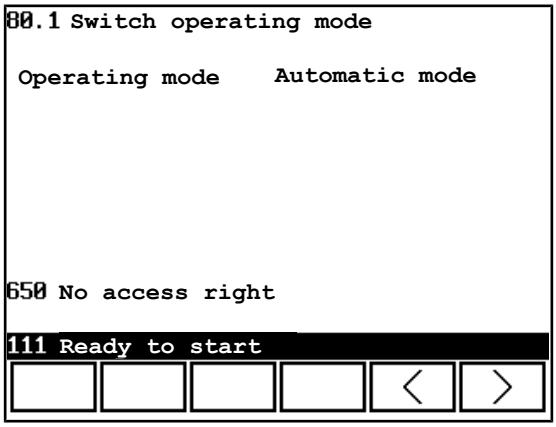


Figure 117: Data screen 80.1 switch operation mode

80.1 Switch Operating Mode

Performing service functions ▸ 139

Selection of the operating mode. We distinguish between "Automatic mode" and "Service mode". The machine can be started for production in "Automatic mode". The "Service mode" is used for maintenance and machine testing purposes.

"Service mode" has to be selected to permit access the other data masks for maintenance and tests.

Operating Mode:

The following operating modes can be selected.

Selection

Service mode: This enables you to access all functions in the test menus.

Automatic mode: This allows just a few functions which eliminates potential risks in the automatic mode.

4.15.11 Menu 81: "81 IO Tests"

Orientation The data screens in this menu allow the inputs and outputs of the control unit to be tested.

81.1 Inputs

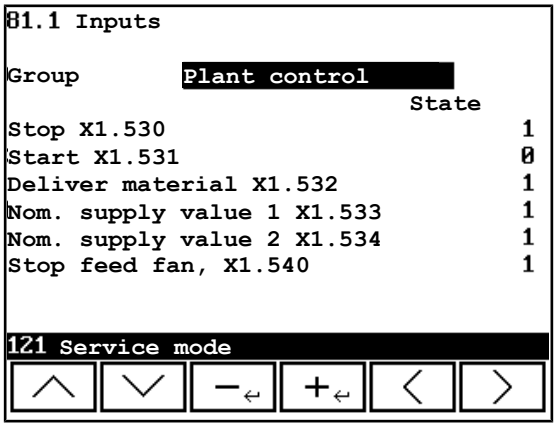


Figure 118: Data screen 81.1 Inputs

Here the individual control unit inputs can be tested. The individual inputs must be activated externally, i.e. the elements must be operated manually. The designation numbers of the individual elements are found in the electrical documentation.

1. Select the input to be tested.
   ⇨ The status of the selected input is shown on the signal lamp. This allows a person to test an input, e.g. by covering the proximity switch.

Changes are only possible in “Service mode”, data screen 80.1.

Group:

1. First, select the group to which the input to be tested is assigned.

Selection

- Plant control
- Machine
- Mixer
- Feed module
- Bypass
- Foreign matter module

Inputs

1. Choose the input to be tested from the selected group.

State

- “0” denotes “low”, i.e. there is no voltage present;
- “1” denotes “high”, i.e. there is a voltage present.

81.2 Outputs

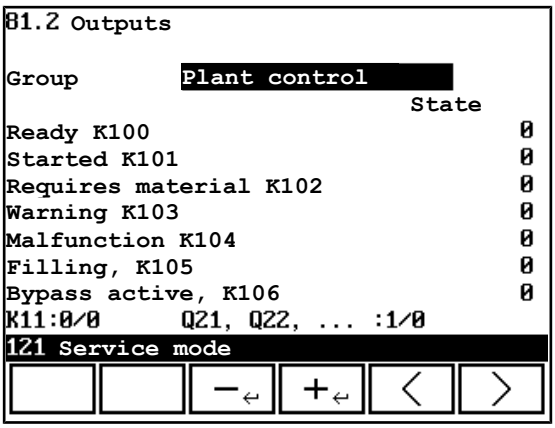


Figure 119: Data screen 81.2 Outputs

Here the individual control unit outputs can be tested. The outputs have been divided into groups. The relevant group is to be selected first, followed by the output to be tested. The status of the selected output is shown on the signal lamp. This allows a person to test an input.

1. Switch off the motor protection switch device.

Changes are only possible in “Service mode”, data screen 80.1

Group:

1. First, select the group to which the output to be tested is assigned.

Selection

- Plant control
- Mixer
- Feed module
- Miscellaneous
- Foreign matter module

Outputs:

1. Choose the output to be tested from the selected group.

State

- “0” denotes “low”, i.e. there is no voltage present;
- “1” denotes “high”, i.e. there is a voltage present.

4.15.12 Menu 82: "82 Functional Tests"

Orientation Allows for general function tests.

82.1 Conveyor Belt, M21

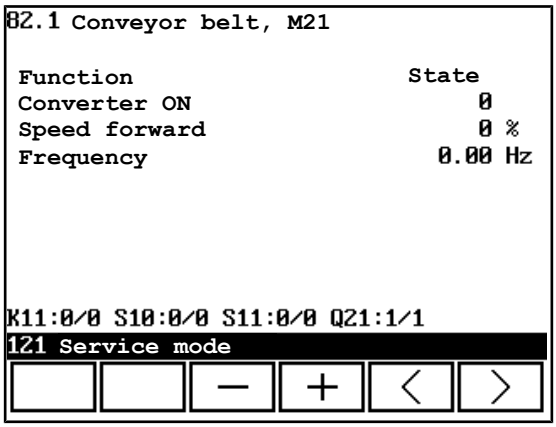


Figure 120: Data screen 82.1 Conveyor belt, M21

Performing service functions ▸ 139

Changes are only possible in “Service mode”, data screen 80.1. The number on the information line indicates the current status of this element. The signals indicated on the information line must be correct.

Preparation:

- The emergency stop button has not been pressed.
- The motor protection switch device is on.
- The frequency converter has no faults.
- The safety circuit must be active and closed.

Converter ON:

1. Press the START button.
   ⇨ The status changes to “1”. The frequency converter is ready to be started.

Speed forward:

1. Use the “+”/“-” buttons to enter the speed as a percentage (%) of the maximum speed.
   ⇨ If the selected speed is adopted after pressing the START button, the motor will also start.

Frequency:

The output frequency of the frequency converter is displayed.

The function and procedure, described in data screen 82.1, also apply to the following data screens.

Spiked lattice, M22:

Data screen 82.2

Opening roller, M23:

Data screen 82.3

Compression roller M37:

Data screen 82.7

Feed roller M31:

Data screen 82.8

Opening roller M32:

Data screen 82.9

No selection for direction of rotation.

82.4 Take-Off Roller, M24

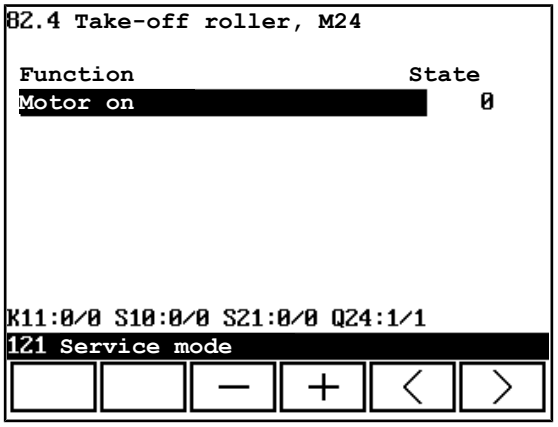


Figure 121: Data screen 82.4 Take-off roller, M24

Changes are only possible in “Service mode”, data screen 80.1. The number on the information line indicates the current status of this element. The signals indicated on the information line must be correct.

Preparation:

- The emergency stop button has not been pressed.
- The motor protection switch device is on.
- The safety circuit must be active and closed.

Motor on:

1. Press the START button.
   ⇨ The status changes to “1”.

The function and procedure, described in data screen 82.4, also apply to the following data screens.

Feed fan:

Data screen 82.6

82.5 Electric Travel Cylinder M25

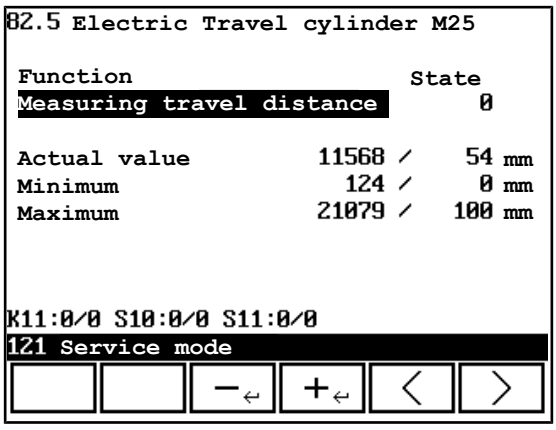


Figure 122: Data screen 82.5 Electric travel cylinder M25

Position of the opening roller to the spiked lattice (standard setting) ▸ *160*

The emergency stop button has not been pressed.

The safety circuit is closed. The first number on the information line indicates the current status of this element; the second number the target status. Changes are only possible in “Service mode”, data screen 80.1

This data screen also applies to the following elements.

Function:

Selection:

Measuring travel distance: Must be carried out after replacing the electric cylinder. After pressing the START button, the position detection of the electric cylinder is initialised. The piston rod is fully extended and retracted.

Middle position: After pressing the START button, the electric cylinder moves to the centre position.

extend: After pressing the START button, the electric cylinder extends.

retract: After pressing the START button, the electric cylinder retracts.

82.10 Electric Travel Cylinder M33

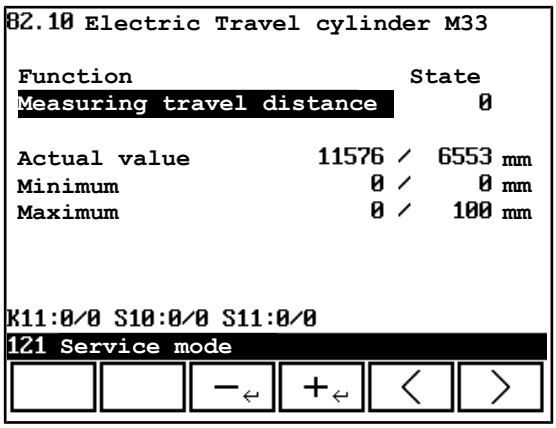


Figure 123: Data screen 82.10 Electric travel cylinder M33

Electric cylinder for the grating setting ▸ 268

The emergency stop button has not been pressed.

The safety circuit is closed. The first number on the information line indicates the current status of this element; the second number the target status.

Changes are only possible in “Service mode”, data screen 80.1

Function:

Selection:

Measuring travel distance: Must be carried out after replacing the electric cylinder. After pressing the START button, the position detection of the electric cylinder is initialised. The piston rod is fully extended and retracted.

Middle position: After pressing the START button, the electric cylinder moves to the centre position.

extend: After pressing the START button, the electric cylinder extends.

retract: After pressing the START button, the electric cylinder retracts.

82.11 Electric Travel Cylinder M34

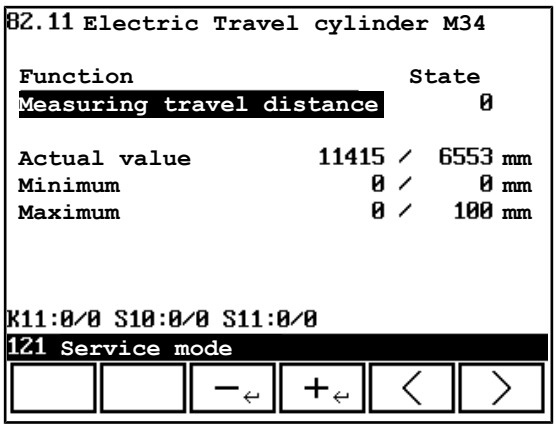


Figure 124: Data screen 82.11 Electric travel cylinder M34

Electric cylinder for the grating setting ▸ *268*

The emergency stop button has not been pressed.

The safety circuit is closed. The first number on the information line indicates the current status of this element; the second number the target status.

Changes are only possible in “Service mode”, data screen 80.1

Function:

Selection:

Measuring travel distance: Must be carried out after replacing the electric cylinder. After pressing the START button, the position detection of the electric cylinder is initialised. The piston rod is fully extended and retracted.

Middle position: After pressing the START button, the electric cylinder moves to the centre position.

extend: After pressing the START button, the electric cylinder extends.

retract: After pressing the START button, the electric cylinder retracts.

82.12 Distribution Cylinder, Y1

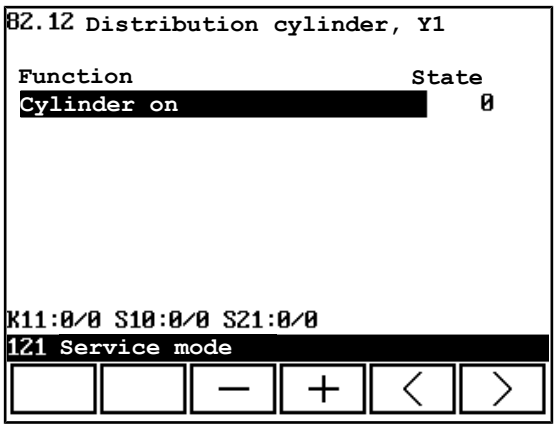


Figure 125: Data screen 82.12 Distribution cylinder, Y1

Only applicable to B 76 machines.

Changes are only possible in “Service mode”, data screen 80.1. The number on the information line indicates the current status of this element. The signals indicated on the information line must be correct.

Preparation:

- The emergency stop button has not been pressed.
- The motor protection switch device is on.
- The safety circuit must be active and closed.

Cylinder on:

1. Press the START button.

Result The pneumatic cylinder is extended and retracted.

4.15.13 Menu 83: "83 Endurance Test"

System tests, such as resetting all data to nominal values or activating a “cold start”.

83.1 Endurance Test

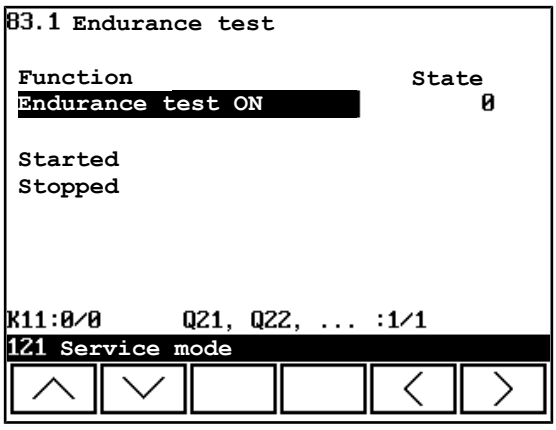


Figure 126: Data screen 83.1 Endurance test

This test is only required when carrying out the internal test procedure. All the drives are started simultaneously.

Changes are only possible in “Service mode”, data screen 80.1

Endurance test ON

The machine must be completely empty.

Perform the test using the START / STOP buttons.

4.15.14 Menu 84: "84 General Test"

84.1 Push-Button and LED Test

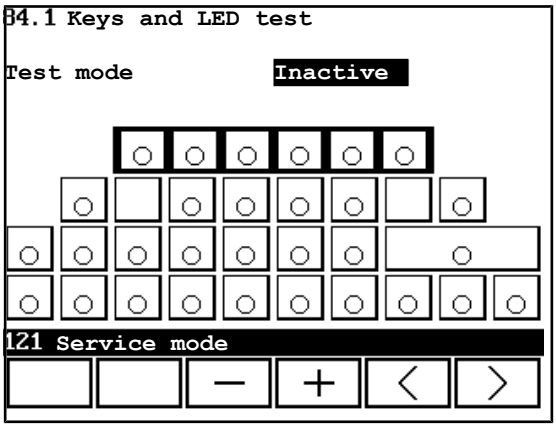


Figure 127: Data screen 84.1 Keys and LED test

The push-buttons and LEDs can be tested in this data mask.

Test mode:

If the test mode is set to "active", all the LEDs on the operating unit light up.

The push-buttons on the operating unit can be tested in addition. If a push-button is pressed, the appropriate test mask has to react.

4.15.15 System Functions

8.1 Cold Start Procedure

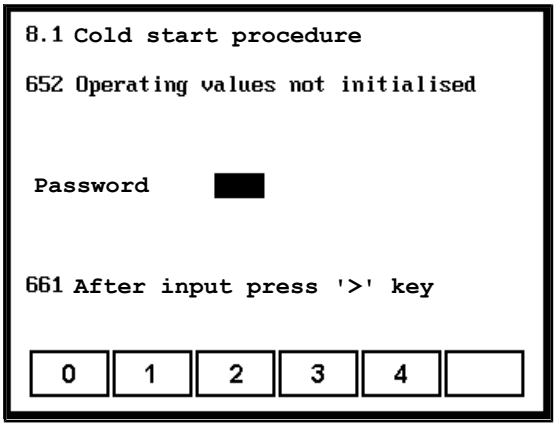


Figure 128: Data screen 8.1 Cold start procedure

Orientation This mask appears on first commissioning, possibly following a software upgrade, if the data in the memory were erased or if an intentional cold-start was initiated.

1. First enter the password.
   ⇨ You will then be guided through all the necessary data masks in which settings must be defined or checked.

Password:

1. Enter the appropriate 4-digit password using the soft keys 0-4.
2. Then press the ">" key to go to the next mask.
3. Press the "C" key to delete the password code and re-enter it.

8.1 Cold Start Procedure

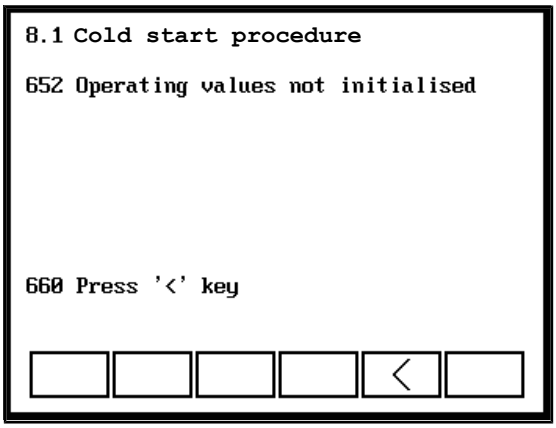


Figure 129: Data screen 8.1 Cold start proc

This mask appears after password entry.

660 press the "<" key

If you press the "<" key, you will be guided through all the data masks in which the user has to make entries.

8.1 Cold Start Procedure

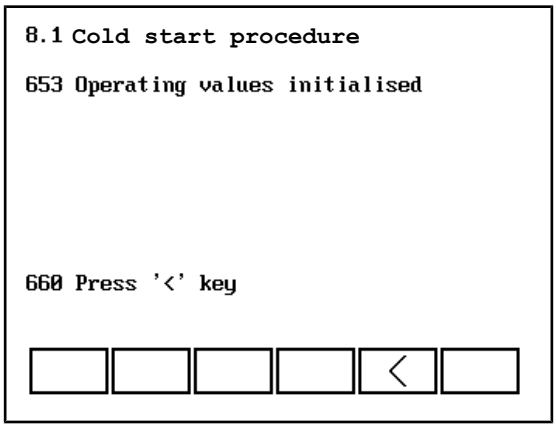


Figure 130: Data screen 8.1 Cold start procedure

This mask appears at the end of the cold start process, after you have been taken through all the settings.

Follow the instructions in the lowermost line to be able to start the machine afterwards.

9 Password Entry

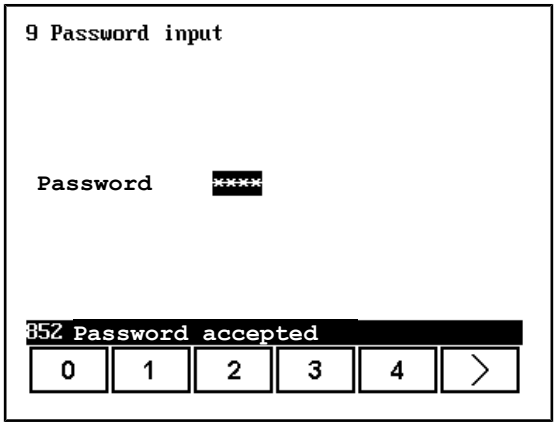


Figure 131: Data screen 9 Password input

Certain entries and tests are possible in data masks only if the password has been entered previously. (Soft key "Key in basic mask).

9.1 Password Change Level 2

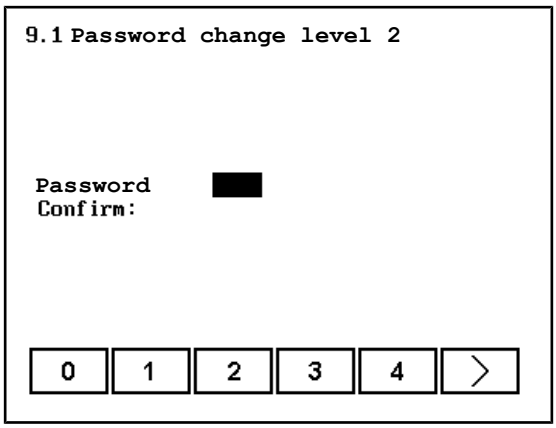


Figure 132: Data screen 9.1 Password change level 2

A new password can be assigned in this data screen. If several passwords (“S2 to S3”) have been assigned, several data screens will appear (9.2 to 9.x).

9.5 Password Change Master

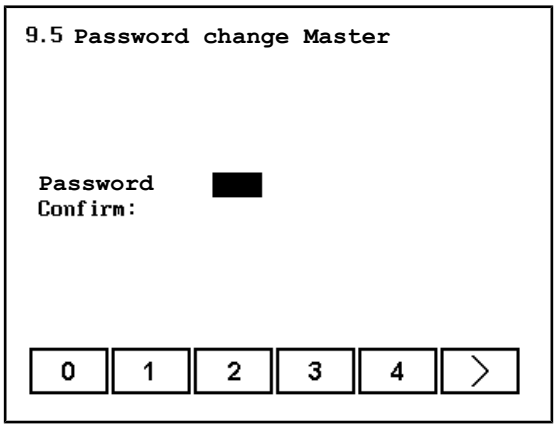


Figure 133: Data screen 9.5 Password change Master

A new master password may be assigned on this mask.

5 Commissioning

This chapter contains the information about the commissioning of the machine. Only Rieter technicians or Rieter-approved technicians are permitted to do the commissioning of the machine.

5.1 Commissioning Personnel

Only Rieter personnel or Rieter approved personnel are permitted to commission the machine at customer’s location.

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6 Operation

This chapter contains the information about the operation of the machine. This chapter contains the information about how to change the technology components.

6.1 General Information

Only approved personnel are permitted to operate the machine.

This chapter contains the information about how to:

- Use the operating elements.
- Monitor the machine during the production.
- Prevent faults because of the operators maintenance.
- Correct faults in the material flow.
- Operate all data screens.

Before the machine is operated, make sure that:

- The machine is ready for the operation.
- All doors and all covers are closed.
- The emergency stop button is unlocked.
- The main switch is set to the position ON.
- No fault message and no warning message are shown on the screen.

6.2 Safety

6.2.1 Safety Precautions during Adjusting Jobs

When tackling adjusting jobs it is necessary to take suitable safety precautions.

6.2.2 Work Safety for Checking Tasks

When tackling checking jobs it is necessary to take suitable safety precautions.

6.2.3 Safety Precautions during Measuring Jobs

When tackling measuring jobs it is necessary to take suitable safety precautions.

6.2.4 Switching ON Main Switch Q10

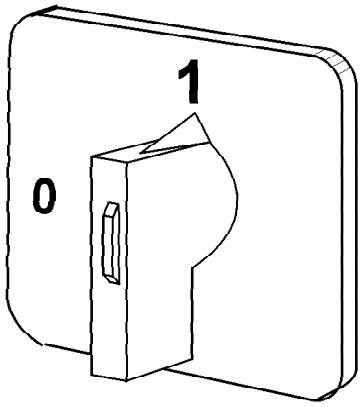


Figure 134: Switching ON main switch Q10

1. Turn the main switch to position "1".

Result The LED for the control voltage begins to flash, light up.

Main switch ▸ 66

6.2.5 Switching OFF the Main Switch

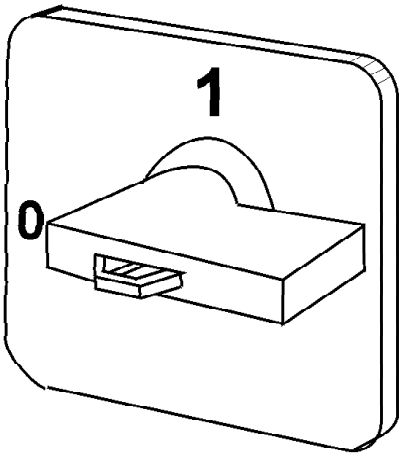


Figure 135: Switching off the main switch.

1. Turn the main switch to position "0".

Result The LED for the control voltage goes out.

Main Switch

6.2.6 Switch OFF the Main Switch and Secure

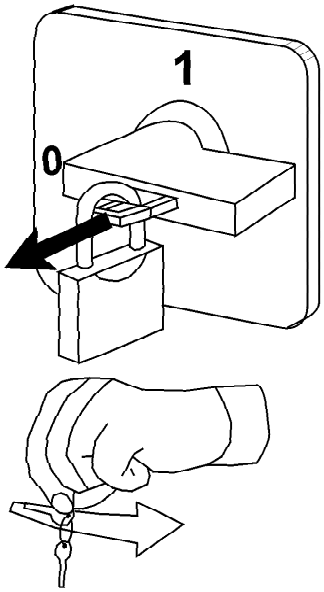


Figure 136: Switch OFF the main switch and secure

1. Switch OFF the main switch.
2. Pull the lever 1 in the direction of the arrow and attach a padlock.
3. Close the padlock.

6.2.7 Engaging the Emergency Stop

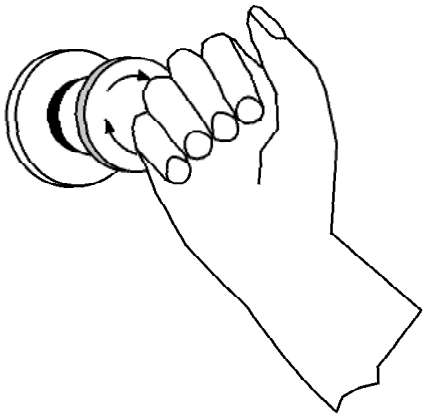


Figure 137: Engaging the emergency stop

1. Press the EMERGENCY STOP button.

Result The machine is put into a safe operating state as quickly as possible.

6.2.8 Resetting the Emergency Stop Button

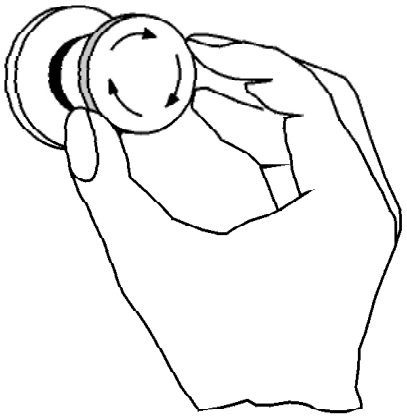


Figure 138: Resetting the Emergency Stop button

Orientation The reason for engaging the EMERGENCY STOP have been clarified and remedied.

1. Turn the EMERGENCY STOP button clockwise.
   ⇨ The EMERGENCY STOP button will pop up. Doing so has reset the EMERGENCY STOP button; it is no longer engaged.

6.3 Operating the Machine (Without R/S Module)

6.3.1 Starting the Machine

Preparatory Work

– The machine is programmed.

Figure 139: Starting the machine

Main switch is switched ON. No malfunctions are indicated.

Press the START button.

The preliminary opening roller and the take-off roller start. If material is requested and the storage unit is ready for operation, the spiked lattice will also start.

6.3.2 Stop Machine

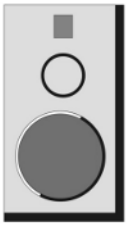


Figure 140: Stop machine

Use the STOP button to stop the machine at any time.

All drives switch OFF.

6.3.3 Emptying the Machine

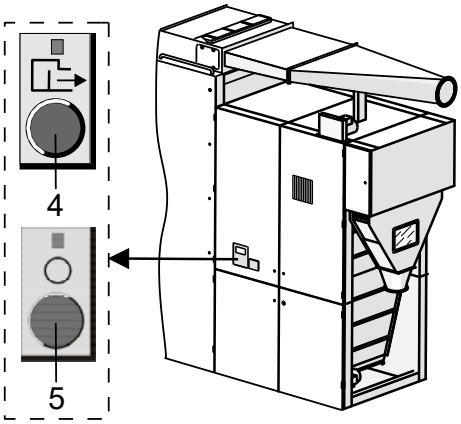


Figure 141: Emptying the machine

1. Press machine button 4 on the operating unit.
   ⇨ Material feed to the storage unit of the machine is stopped. The machine empties.

Orientation Press machine button 4 again to restart the feeding of material to the storage unit.

Prerequisites Make sure that the criteria are obeyed:

✓ The machine (still ready to operate following the emptying procedure) is to be stopped.

1. Press machine button 5.

Result The machine will be stopped.

6.3.4 Rectifying Machine Deficiencies.

Figure 142: Rectifying machine deficiencies

The spiked lattice and the conveyor belt run in reverse all the while the button remains pressed.

6.4 Operating the Machine (With R/S module)

6.4.1 Starting the Machine

Preparatory work

Orientation The machine is programmed.

Figure 143: Starting the machine_1

Prerequisites Make sure that the criteria are obeyed:

✓ Main switch is switched ON. No malfunctions are indicated.

1. Press the START button.

Result The preliminary opening roller and the take-off roller start. If material is requested and the storage unit is ready for operation, the spiked lattice will also start.

6.4.2 Stop Machine

Figure 144: Stop machine_2

1. Use the STOP button to stop the machine at any time.

Result All drives switch off.

6.4.3 Emptying the Machine (R/S Module Attached)

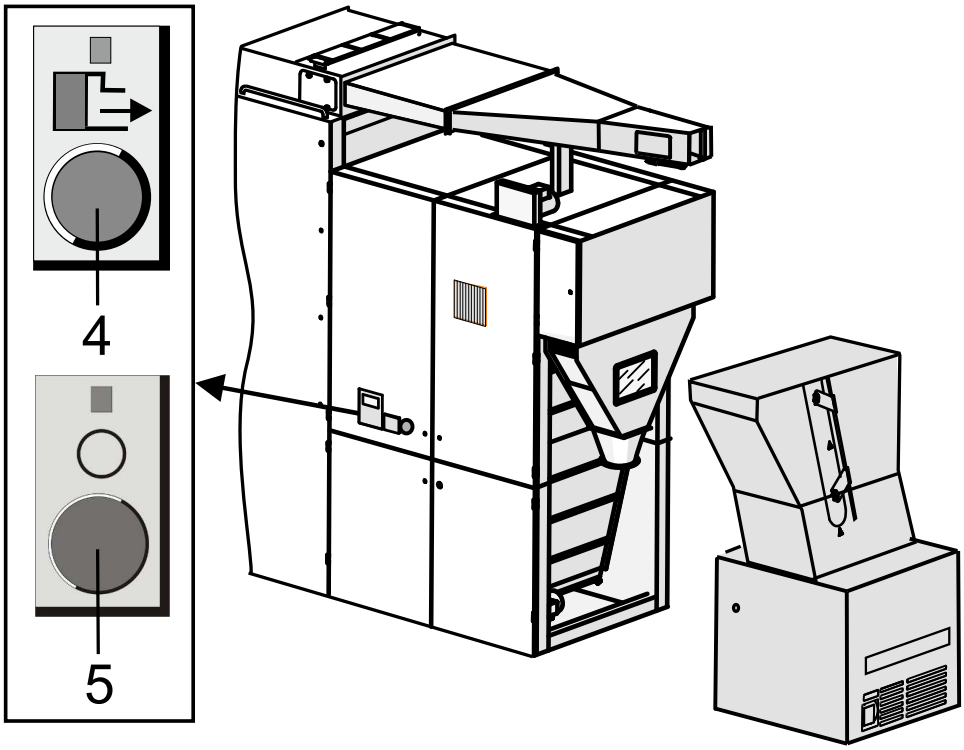


Figure 145: Emptying the machine (R/S module attached)

1. Press machine button 4 on the operating unit.
   ⇨ Material feed to the storage unit of the machine is stopped. The machine empties. Once the machine is empty, the compression and feed rollers, along with the opening roller, are stopped. The machine remains ready for operation.
2. Press machine button 4 again to restart the feeding of material to the storage unit.

Prerequisites Make sure that the criteria are obeyed:

✓ The machine (still ready to operate following the emptying procedure) is to be stopped.

1. Press machine button 5.
   ⇨ The machine will be stopped.

6.4.4 Clearing of Blockages and Rectification of Machine Deficiencies

Clearing Blockages Feed and Compression Rollers can be Rotated in the Reverse Direction

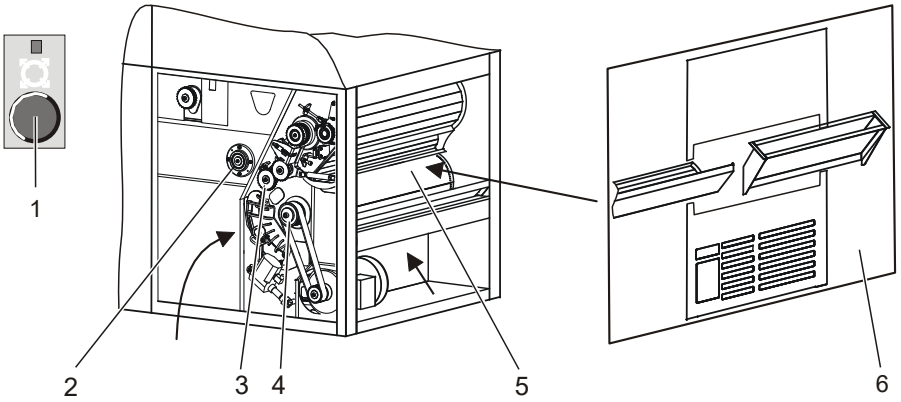


Figure 146: Clearing of blockages and rectification of machine deficiencies

Prerequisites Make sure that the criteria are obeyed:

✓ The doors must be closed. The machine is ready for operation but is not producing. There must be no faults displayed.

1. Rectify and confirm the cleared status of any fault displayed.

Orientation How to Acknowledge a Malfunction

1. Press and hold machine button 1.
   ⇨ The compression rollers 2 and the feed rollers 3 rotate in reverse.
2. After 20 - 30 seconds, release machine button 1.
3. Attempt to move the opening roller 5 by rotating the belt pulley 4.
4. If the opening roller 5 can be moved freely, the machine can be restarted.
   ⇨ If the opening roller 5 is blocked, remove the material responsible for the blockage.

Clearing Blockages (Feed and Compression Rollers Cannot be Rotated in the Reverse Direction)

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Remove all covers 6.
2. Remove the material responsible for the blockage from the area around the opening roller 5 by hand, or using suitable tools.
3. Continually attempt to move the opening roller 5 by rotating the belt pulley 4.
4. Once the opening roller 5 can be moved freely, re-mount all covers 6.

⇨ Then restart the machine.

6.5 Operating Unit

6.5.1 Change the Language

Orientation The "LANGUAGE SELECTION" key allows different languages to be selected.

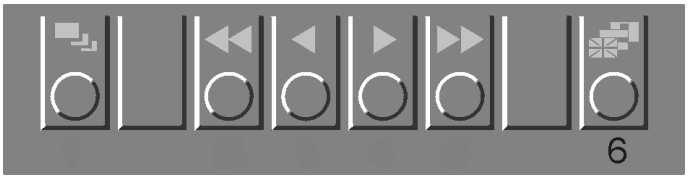


Figure 147: Change the language

Prerequisites Make sure that the criteria are obeyed:

✓ The required language must be activated using the data screen.

1. Press the "LANGUAGE SELECTION" key 6 until the required language is displayed.

Menu40: "40 Setup values, general" ▸ *100*

LANGUAGE-key ▸ *76*

6.5.2 How to Acknowledge a Malfunction

Orientation In the event of a malfunction, the corresponding malfunction mask appears in the overview.

Press the "ACKNOWLEDGE" key and/or "START" key to reset errors that no longer exist.

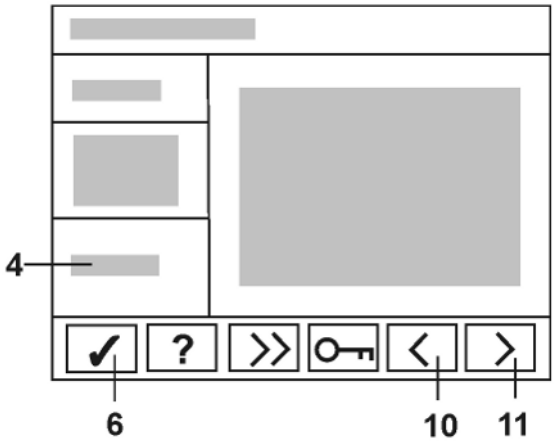


Figure 148: How to acknowledge a malfunction

1. Press the "ACKNOWLEDGE" key 6.
   ⇨ Once the malfunction is remedied, it is reset, i.e. no longer displayed.

The "ACKNOWLEDGE" key appears only when the displayed malfunction is no longer current. Otherwise, the malfunction must first be cleared.

ENTER-key ▸ 69

Box 4 indicates the number of malfunctions.

1. Use the 11 key to display the next malfunction.
2. Use the 10 key to display the previous malfunction.
3. Press the "START key" to start up the machine once all the malfunctions have been cleared.

If malfunctions are still present, however, then these will be displayed and the machine will not start.

6.5.3 Display Additional Help for Troubleshooting

Orientation If a malfunction is displayed, an additional help text may sometimes also be displayed.

A supporting help message is only offered for complex malfunctions.

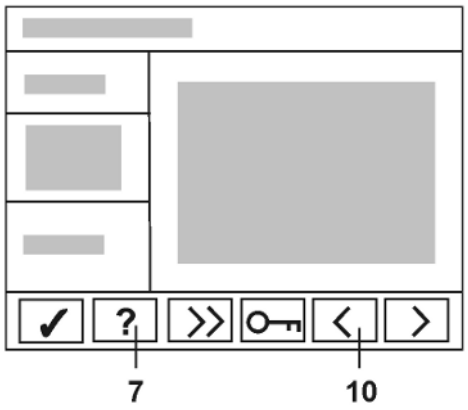


Figure 149: Display additional help for troubleshooting

1. Press the "HELP" key 7.
   ⇨ The error display is overwritten by an additional help message.

HELP-Key ▸ 70

Overview Screen ▸ 86

1. Press "DISPLAY back" key 10.
   ⇨ The malfunction mask is displayed again.

SCREEN-key back ▸ 73

6.5.4 Enter Password

Orientation

Some entries and tests in data screens can only be executed with the required authorisation after entering a password.

Authorization levels

Level 0 (no password)	Read
Level 1 (password required)	Change
Level 2 (password required)v	Service
Level master (password required)	Change passwords

The authorisation necessary for an intended action is shown in the list of menu and data screens.

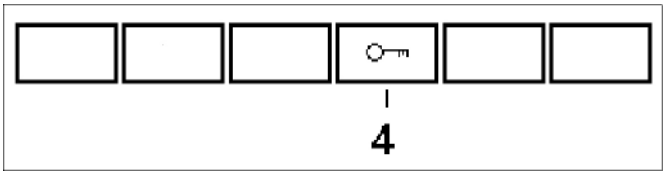


Figure 150: Enter password_1

1. Select main mask.

Display main mask ▸ 136

1. Press the "ENTER PASSWORD" key 4 in the main mask.
   ⇨ The mask for the password input is displayed.

System Functions ▸ 116

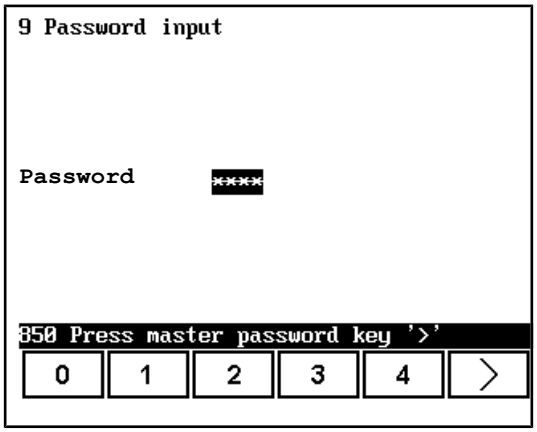


Figure 151: Enter password_2

1. Enter the corresponding 4-digit password using softkeys 1-5.

Valid digits for the password are 0-4 that can be entered using the first 5 programming keys.

1. Press the "C" key to delete the code and enter a new one.

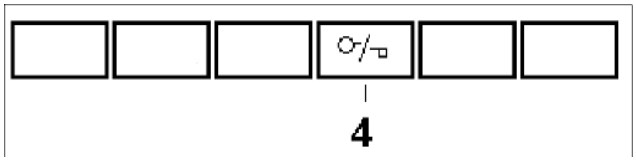


Figure 152: Enter password_3

2. After entering the password, press one of the keys "<<", "<", ">", ">>" or the “MAIN MASK” key.
   ⇨ The crossed out key 4 is displayed in the main mask, i.e. the password has been accepted and the appropriate authorisation, e.g. for input, is active.

PASSWORD-CANCELLING key ▸ 72

1. After entering the password you can go in the menu overview where the appropriate menus are displayed and enabled.

6.5.5 Changing Passwords

Orientation The passwords for the various authorisations can be assigned and changed individually. The master password can also be changed.

In order to alter the password, you must know the master password.

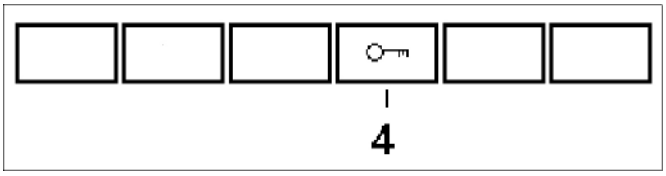


Figure 153: Changing passwords_1

1. Select main mask.

Display main mask ▸ 136

1. Press the "ENTER PASSWORD" key 4 in the main mask.
   ⇨ The mask for the password input is displayed.

Enter password ▸ 131

System Functions ▸ 116

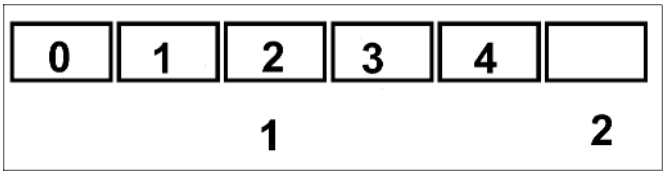


Figure 154: Changing passwords_2

1. Now enter the master password 1 and press the "DISPLAY forward" key 2.
   ⇨ The mask for changing the password is displayed.

System Functions ▸ 116

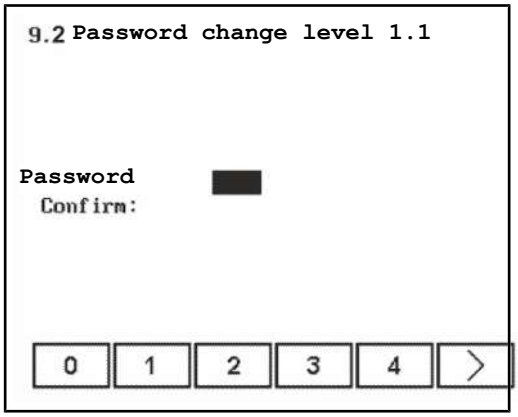


Figure 155: Changing passwords_3

1. Enter the new code twice per password and display the next password step by pressing the sixth programming key ">".

If you do not want to change a password, you can go on to the next password step by pressing the programming key ">".

6.5.6 Cancelling the Password Authorisation

Orientation

By cancelling the password authorisation, you can prevent anybody not authorised from altering data or carrying out test functions.

The password authorisation for inputs is automatically cancelled if no key is pressed for 10 minutes.

For tests it is after 10 hours.

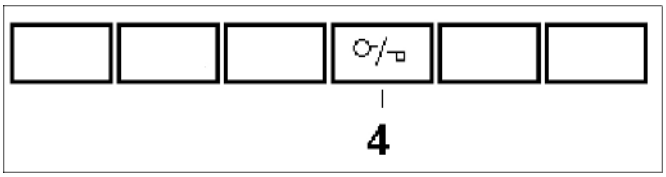


Figure 156: Cancelling the password authorisation

1. Select main mask.

Display main mask ▸ 136

1. Press the "CANCEL PASSWORD" key 4 in the main mask.
   ⇨ The key symbol for the programming key is no longer crossed out, i.e. the password authorisation is cancelled. A new password input is necessary in order for data to be changed or tests to be run.

PASSWORD-CANCELLING key ▸ 72

6.5.7 What do you do if you have Forgotten the Master Password?

The master password is required for changing passwords. This master password should only be known to an administrator.

– If the master password is no longer known, a special password has to be requested from Rieter that is valid for one day.

– On delivery of the machine, the authorisations S2 - S3 are assigned the standard password 1001. The master password is 1423.

6.5.8 Displaying an Individual Data Screen

Orientation In order to view actual values, alter settings or run tests, it is necessary to display the appropriate data screen.

Before a data screen with authorisation protection can be displayed you must first enter the appropriate password.

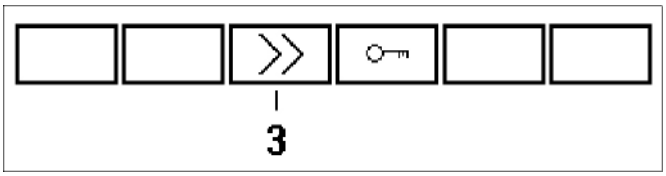


Figure 157: Displaying an individual data screen_1

Prerequisites Make sure that the criteria are obeyed:

✓ A main mask (overview mask or error) is displayed.

1. Press the "MENU OVERVIEW" key 3.

   ⇨ The menu overview is displayed.

MENU overview key ▸ 70

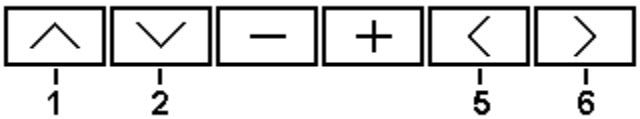


Figure 158: Displaying an individual data screen_2

1. Press the "CURSOR forward" 2 or the "CURSOR back" key 1 until the required menu is marked.

POINTER key forward ▸ 70

POINTER key back ▸ 69

1. Press the "DISPLAY forward" key 6 or the "DISPLAY back" key 5 until the required data screen is displayed.

SCREEN-key scroll forwards ▸ 74

Navigating to a Desired Data Screen with One Key ▸ 135

6.5.9 Navigating to a Desired Data Screen with One Key

There is another easy method of accessing the data screens.

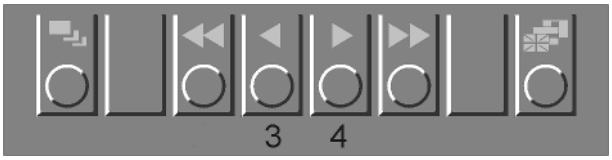


Figure 159: Navigating to a desired data screen with one key

Press the "DISPLAY forward" key 4 or "DISPLAY back" key 3.

Each touch of the key calls up the next or the previous data screen or menu.

DATA-DISPLAY-key-forward ▸ 76

DATA-DISPLAY-key-back ▸ 75

6.5.10 Display the Last Data Screen Again

Orientation In the overview mask you can use the "DIRECT back" key to return to the data screen you were viewing last.

(In this example you jump to data screen 50.2).

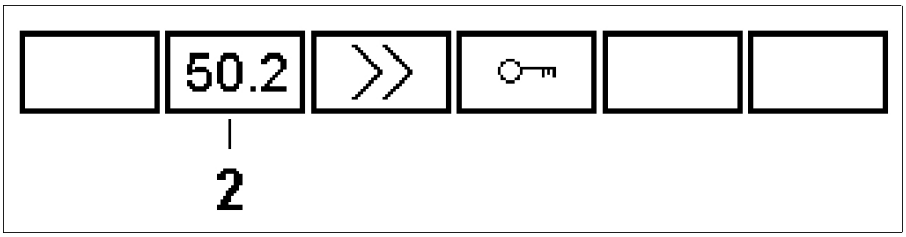


Figure 160: Display the last data screen again

1. Press the “DIRECT back” key 2.

Result The last data screen displayed is shown again. (In this example you jump to data screen 50.2).

DIRECT-Key Back ▸ 70

6.5.11 Browsing in the Same Masks

Browsing from one overview mask to another if there are several of them. Display the next malfunction if there are several pending malfunctions simultaneously.

Press the "DISPLAY forward" or "DISPLAY back" key (programming key 5 or 6).

The next masks are selected.

SCREEN-key scroll forwards ▸ 74

SCREEN-key back ▸ 73

6.5.12 Display Main Mask

Independently of which mask is on the screen, touching any key immediately changes the display back to the main mask (standard overview mask or error display).

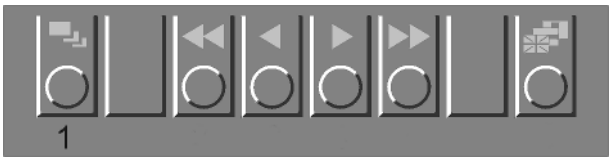


Figure 161: Display main mask

Press the "MAIN MASK" key 1 once.

BASIC display key ▸ 74

If a malfunction is displayed, the standard overview mask appears as long as the "MAIN MASK" key 1 is pressed.

BASIC display key ▸ 74

6.5.13 Changing Values/Settings in Data Screens

Orientation Values and settings can be changed in the corresponding data screens. To do so, first enter the password for input authorisation.

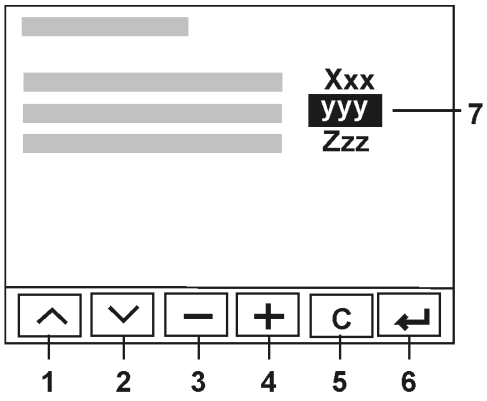


Figure 162: Changing values/settings in data screens

1. If several modifiable values are displayed in the data screen, first use the "CURSOR forward" 2 or the "CURSOR back" key 1 to highlight the value to be changed 7.

POINTER key forward ▸ 70

POINTER key back ▸ 69

1. Change the value with the "PLUS" key 4 or the "MINUS" key 3.

MINUS-key ▸ 71

PLUS-key ▸ 73

1. If an incorrect value was entered, you can use the "DELETE" key 5.
   ⇨ The original value before you pressed the "+" or "-" key is displayed again.

The “DELETE” key appears only if the changed values have to be confirmed.

DELETE key ▸ 73

1. Press the "ENTER" key 6 to confirm the input and to save the change.

The “ENTER” key appears in the bottom right-hand corner only if the changed values have to be confirmed.

ENTER-key ▸ 74

See also

ENTER-Key [▸ 69]

6.5.14 Browsing Lists

Orientation Displayed lists may be larger and may therefore not be completely displayed on the screen. The following programming keys are provided in the data screen for this.

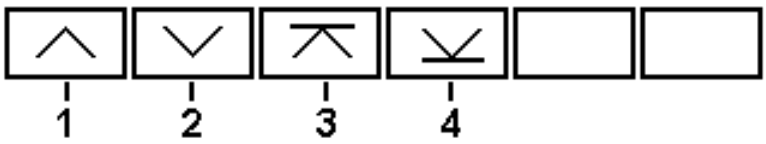


Figure 163: Browsing lists

1. Press the "CURSOR forward" 2 or the "CURSOR back" key 1.
   ⇨ The mark is moved up or down by one field.

POINTER Key Back ▸ 69

POINTER key forward ▸ 70

1. Press the "START OF LIST" key 3.
   ⇨ This takes you to the beginning of the list.

START OF LIST key ▸ 71

1. Press the "END OF LIST" key 4.
   ⇨ This takes you to the end of the list

END OF LIST Key ▸ 72

6.5.15 Changing from Standard Time to Summer Time

Orientation The changeover from standard time (winter time) to summer time or vice-versa is made via the operator panel.

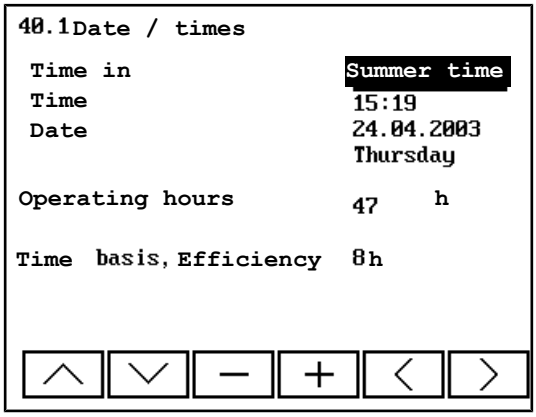


Figure 164: Data screen 40.1 date / time

Prerequisites Make sure that the criteria are obeyed:

✓ First enter at least the input password.

1. Display data screen 40.1.

Menu 40: "40 Setup Values, General" ▸ *100*

1. Change the time displayed in the second row with the "PLUS“ key or the "MINUS“ key.
2. Press the “ENTER" key to save the change.

   ⇨ The time displayed in the data screen is now one hour forward or back.

ENTER-key ▸ *69*

6.5.16 Sensor Testing and Display of I/O Status via Signal Lamp

Orientation All elements such as sensors, switches etc. whose I/O status is read by the control system can be tested.

This is done in data screen 81.1. The I/O status (1 or 0) of the selected element is displayed in the data screen as well as at the signal lamp.

1. Display data screen 81.1.
2. Select element group and element.

Result The I/O status is displayed in the data screen as 1=24 VDC or 0=0 VDC. Display on signal lamp: 0=dark, 1=lit up.

6.5.17 Performing Service Functions

WARNING

Activating machine functions via data screen!

Injury hazard through mechanical movements.

- ▶ Ensure that there is no person present in the hazard zone.
- ▶ Only authorised and trained personnel may perform tasks in service mode.

Orientation

Individual machine functions can be performed for troubleshooting and maintenance work.

All doors and covers in the safety loop must be closed.

Prerequisites

Make sure that the criteria are obeyed:

✓ The password has to be entered first.

1. Display data screen 80.1 and select operating mode "Service".

Menu80: "80 Operatingmode" ▸ *106*

1. Call up the appropriate test data screen (82.1 to 8n.n) that allows the function test to be performed.

Menu82: "82 Functional tests" ▸ *109*

1. Select the element to be tested.
2. Select the desired function.
3. Press the "ENTER" key to confirm your choice.

ENTER-Key ▸ *69*

WARNING

No person is permitted to be present in the hazard zone!

This service function causes movement to be triggered immediately, which may lead to a person suffering injury.

- ▶ Press the green "START" key.

⇨ The function is initiated. The data screen also shows the states of the sensors concerned and, if necessary, whether the function has started (=1) or stopped (=0).

Most functions stop immediately as soon as you release the "START" key. Otherwise the function can always be stopped by pressing the "STOP" key.

6.5.18 Setting the Brightness of the Display

Orientation If the display is difficult to read or if some dark areas are visible, this can be improved by adjusting the brightness.

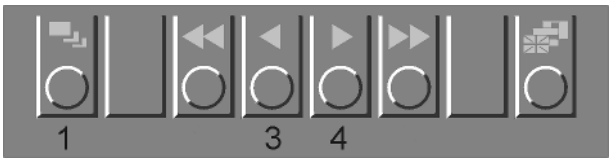


Figure 165: Setting the brightness of the display

1. Press the "MAIN MASK" key 1 simultaneously with the "DISPLAY forward" key 4.
   ⇨ The mask gets lighter.

BASIC display key ▸ 74

DATA-DISPLAY-key-forward ▸ 76

1. Press the "MAIN MASK" key 1 simultaneously with the "DISPLAY back" key 3.
   ⇨ The mask gets darker.

BASIC display key ▸ 74

DATA-DISPLAY-key-back ▸ 75

6.6 Electronic Documentation (e-DOC)

6.6.1 Navigating through the e-DOC (Electronic Documentation) Program

Finding information on the contents of e-DOC

Figure 166: Navigating through the e-DOC (electronic documentation) program

Orientation Information on the contents of e-DOC can be found in “Manuals and diagnostics” 1

The e-DOC program contains the following technical documents relevant to the machine: Operating manual, troubleshooting information, spare parts catalogue and spare parts ordering information, operating manuals in PDF format, spare parts catalogues and electrical documentation, marketing information, training information and forms.

The following actions are possible:

1. Ordering of spare parts.
2. Retrieval of information on the fitting and removal of spare parts.
3. Retrieval of information on rectifying faults.
4. Search for technical terms.

6.6.2 Opening e-DOC

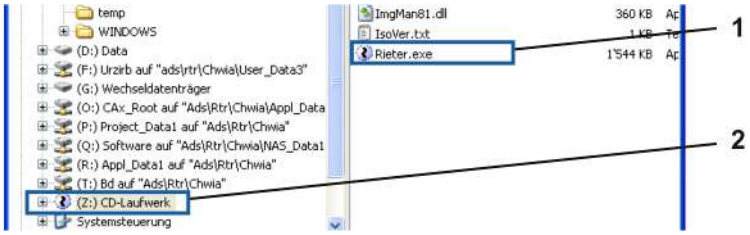
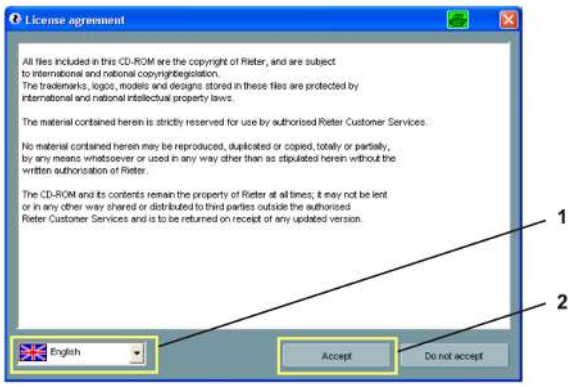


Figure 167: Opening e-DOC

1. Select the appropriate drive 2 and open e-DOC 1.

The relevant (country-dependent) WINDOWS operating system has to be used to open the e-DOC program, so that the lines are displayed correctly.

6.6.3 Selecting the Language and Accepting the License Agreement


License agreement
All files included in this CD-ROM are the copyright of Rieter, and are subject to international and national copyrightlegislation.
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The CD-ROM and its contents remain the property of Rieter at all times; it may not be lent or in any other way shared or distributed to third parties outside the authorised Rieter Customer Services and is to be returned on receipt of any updated version.
English
Accept
Do not accept
1
2

Figure 168: Selecting the language and accepting the licence agreement

1. Select the language for the e-DOC program 1.
2. Read and accept the license agreement 2.

6.6.4 Opening the Home Page

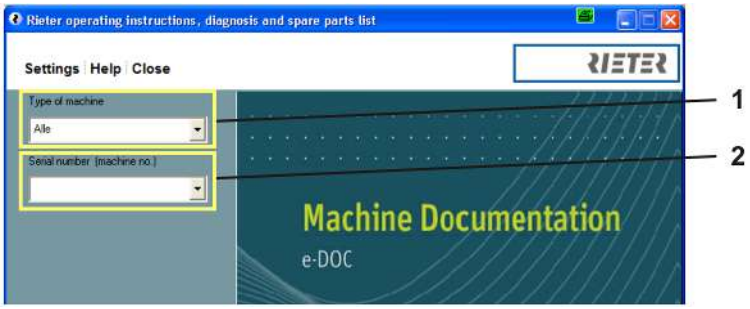

Figure 169: Opening the home page

Select the machine type 1 and the machine number 2.

6.6.5 Opening the “Settings” Menu and Entering Data

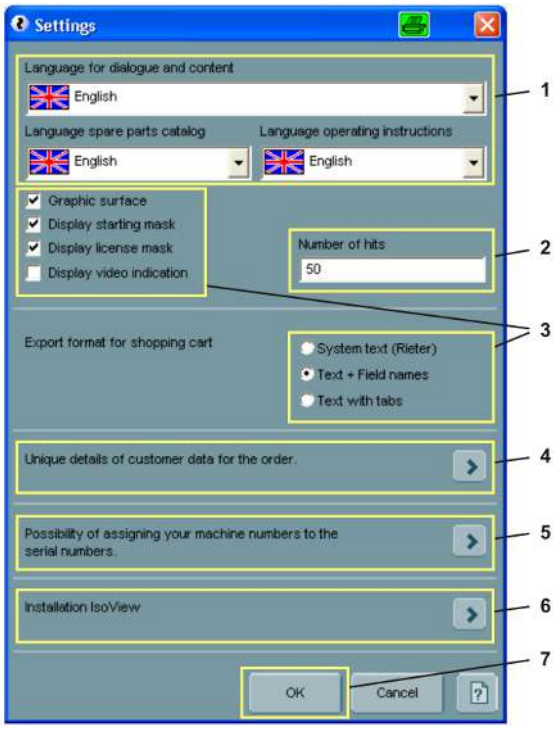

Figure 170: Opening the “Settings” menu and entering data

1. Select the languages for dialogue and content, the spare parts catalogue and the operating manual 1.
2. Select a limit for the number of search results 2.
3. Make modifications to the output display format 3.
4. Enter customer data for orders 4.
5. Match machine data 5.
6. Install the ISOView program 6.

7. Click on OK to confirm the settings 7.

6.6.6 Entering Ordering Address

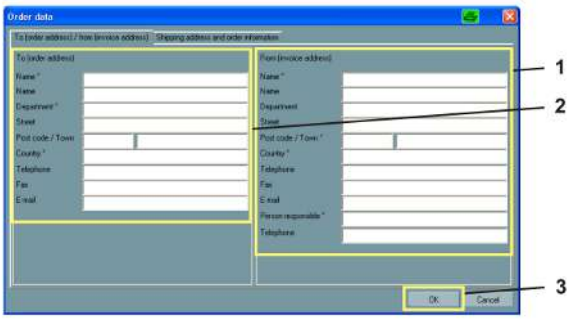

Figure 171: Entering ordering address

1. Enter ordering address 1 and billing address 2.
2. Click on OK to confirm the data 3.

6.6.7 Entering Recipient's Address

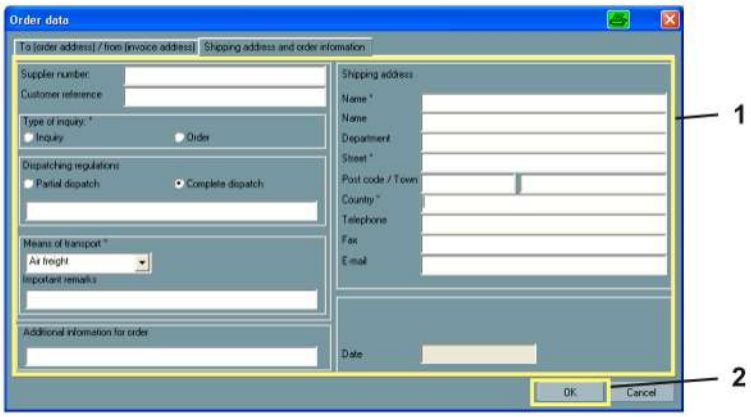

Figure 172: Entering recipient's address

1. Enter the recipient's address, the supplier number and further order-related details 1.
2. Click on OK to confirm the data 2.

6.6.8 Opening the e-DOC Overview Screen

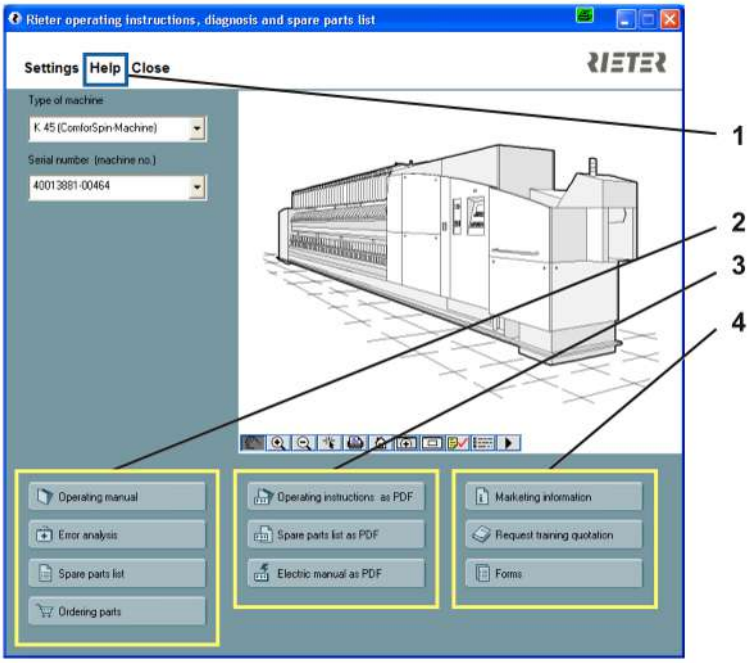

Figure 173: Opening the e-DOC overview screen

1. Open the “Help” menu, if required, to bring up a description of the current page 1.
2. Select the required technical document 2 (operating manual, troubleshooting information, spare parts catalogue, spare parts ordering information).
3. Select the required technical document in PDF format 3 (operating manual, spare parts catalogue, electrical documentation).
4. Select information 4 on marketing and training, and select forms.

6.6.9 Opening the Spare Parts Catalogue

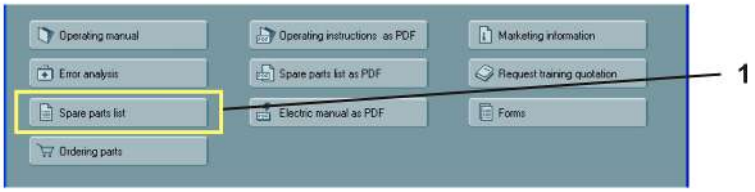

Figure 174: Opening the spare parts catalogue 1

Click on the appropriate button to open the spare parts catalogue 1.

6.6.10 Navigating through the Spare Parts Catalogue

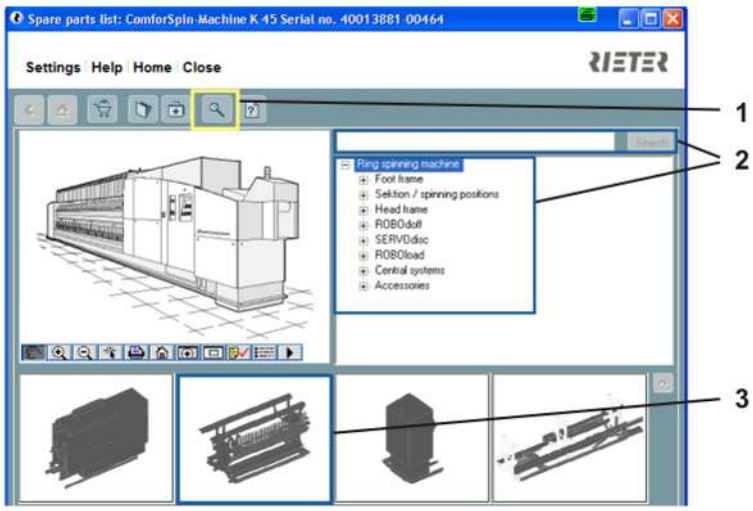

Figure 175: Navigating through the spare parts catalogue

Navigate via full-text search 1, or through text 2 or images 3. To this end, open the selected subassembly by double-clicking as appropriate.

6.6.11 Navigating through Lower-level Sub-assemblies in the Spare Parts Catalogue

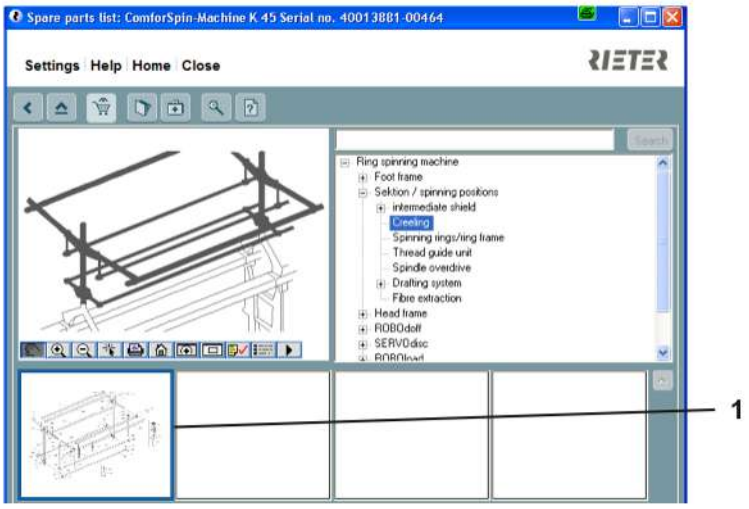

Figure 176: Navigating through lower-level sub-assemblies in the spare parts

Navigate through the images 1. To this end, double-click the image.

6.6.12 Selecting Spare Parts for Sub-assemblies

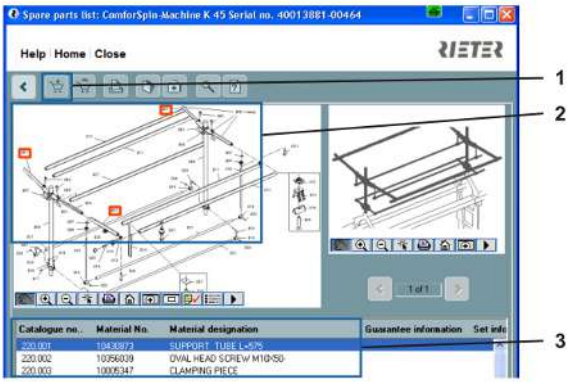

Figure 177: Selecting spare parts for sub-assemblies

1. Mark the reference numbers of spare parts 2 or select the spare parts from the table 3.
2. Open the shopping basket 1.

6.6.13 Filling in the Order Form

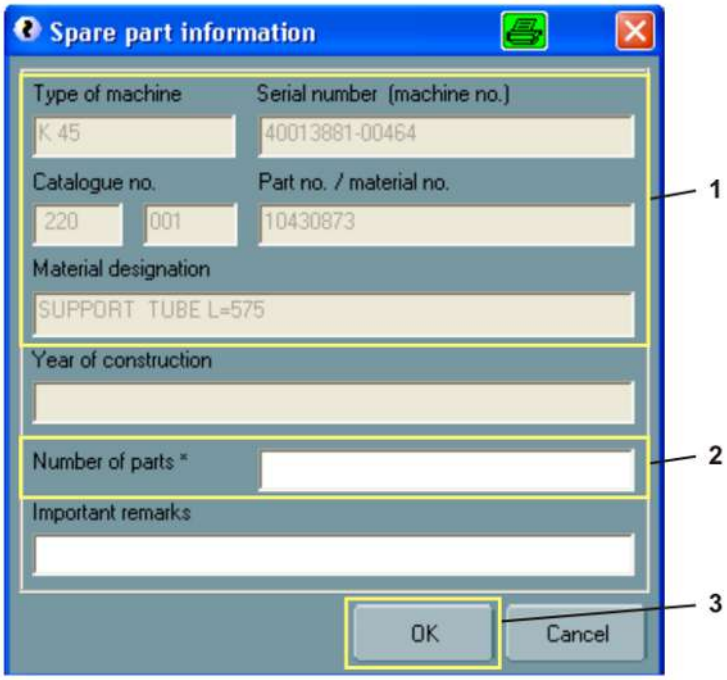

Figure 178: Filling in the order form

Orientation A separate order form has to be filled in for each spare part.

The order form appears after the shopping basket is opened. The data for the selected spare part is automatically added to the order form by the system 1.

1. Enter the required quantity for the spare parts 2.
2. Check the details on the order form and click on OK to confirm the order 3.

After confirming the order, the spare part is “placed” in the shopping basket.

6.6.14 Saving the Shopping Basket Information

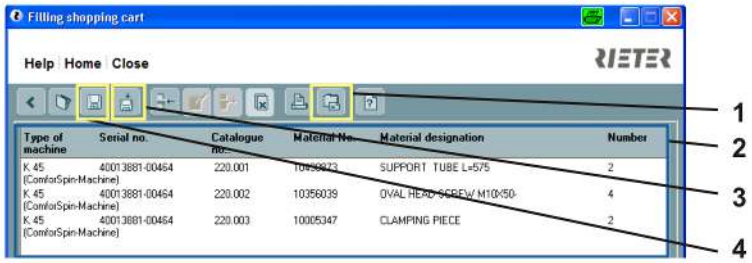

Figure 179: Saving the shopping basket information

1. Check the shopping basket contents 2.
2. Copy the shopping basket information to the clipboard 1.
3. Save the shopping basket information via the “Save as ...” function 3 or the “Save” function 4.

6.6.15 Example of an Order

Order data

To (order address):
From (invoice address):
Shipping address:
Person responsible:
Telephone:
Supplier number:
Customer reference:
Dispatching regulations and means of transport:
Additional information for order:
Order list:

K 45 40013881-00464 ( )

Item	Cat. no.	Material no.	Designation	Number
0010	220.001	10430873	SUPPORT TUBE L = 575	2
0020	220.002	10356039	OVAL HEAD SCREW M10x50	4
0030	220.003	10005347	CLAMPING PIECE	2

Date 2012-04-04 Signature (person responsible)

1

Figure 180: Example of an order

Check the data shown on the order form 1.

6.6.16 Switching from the Spare Parts Catalogue to the Operating Manual

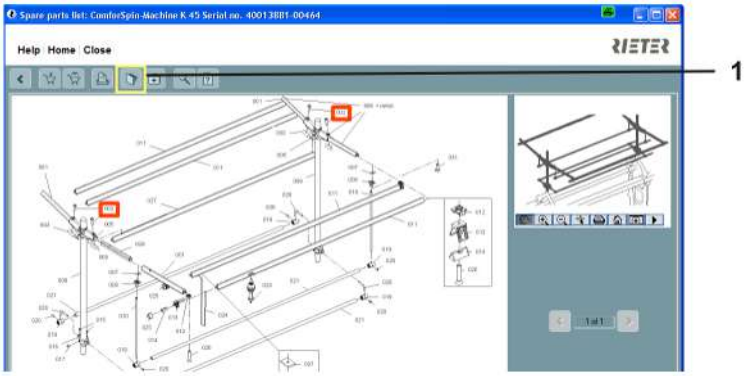

Figure 181: Switching from the spare parts catalogue to the operating manual

Click on the appropriate button to switch from the spare parts catalogue to the operating manual 1.

6.6.17 Navigating through the Operating Manual

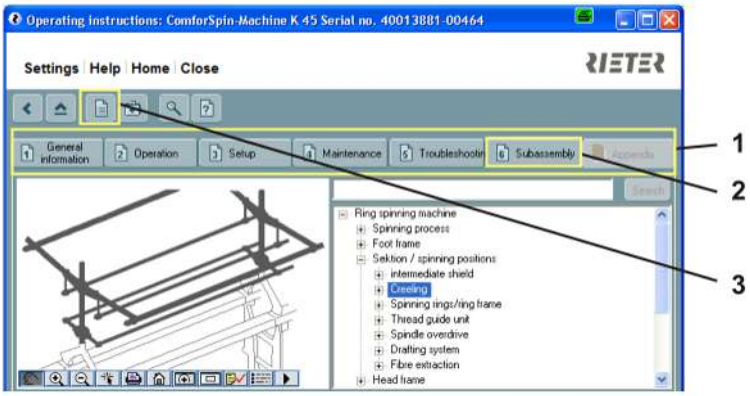

Figure 182: Navigating through the operating manual

1. Use the structure of the chapters to navigate through the operating manual 1.
2. In the “Sub-assemblies” chapter, search according to handling instructions, e.g. fitting of spare parts 2.
3. Switch to the spare parts catalogue 3.

6.6.18 Searching for Handling Instructions in the Operating Manual

Figure 183: Searching for handling instructions in the operating manual

1. Read the handling instructions (e.g. for “Settings”) in the operating manual and then carry them out 2.
2. Go back one page 1.

6.6.19 Opening the Operating Manual

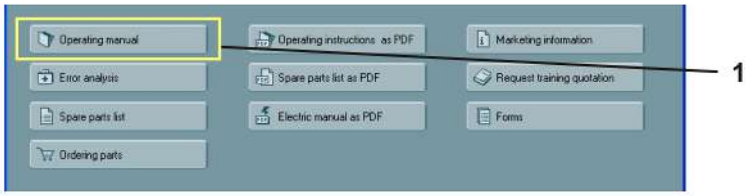

Figure 184: Opening the operating manual

Click on the appropriate button to open the operating manual 1.

6.6.20 Navigating through the Operating Manual

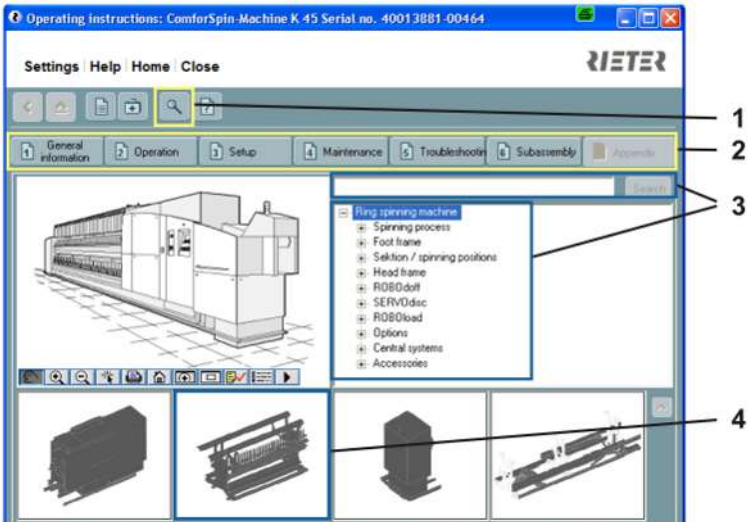

Figure 185: Navigating through the operating manual

Navigate via full-text search 1, or through chapters, text 2 or images 3.

6.6.21 Opening the Troubleshooting Information Page

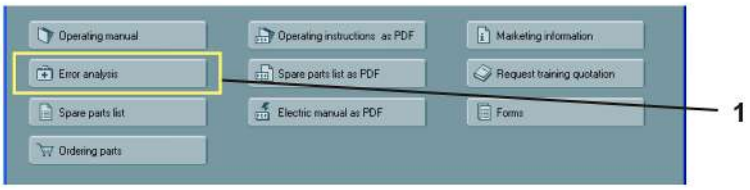

Figure 186: Opening the troubleshooting information page

Click on the appropriate button to open the troubleshooting information page 1.

6.6.22 Entering the Fault Code

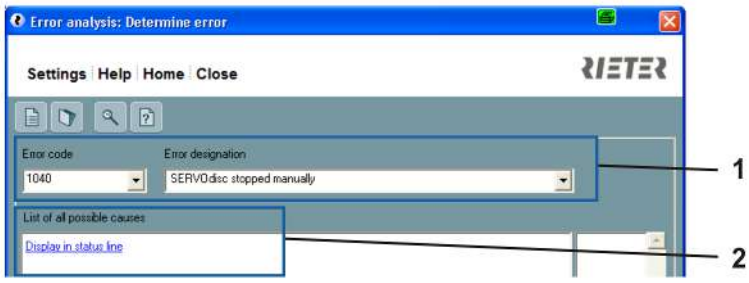

Figure 187: Entering the fault code

1. Enter the fault code or select from the list 1.
2. Select suggestion 2.

6.6.23 Rectifying Faults

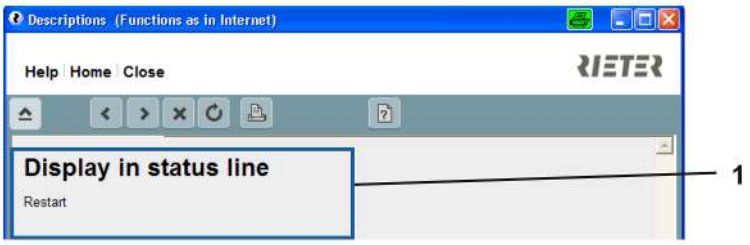

Figure 188: Rectifying faults

Read and then carry out the work instructions 1.

6.6.24 Directly Opening the Order Form for Spare Parts

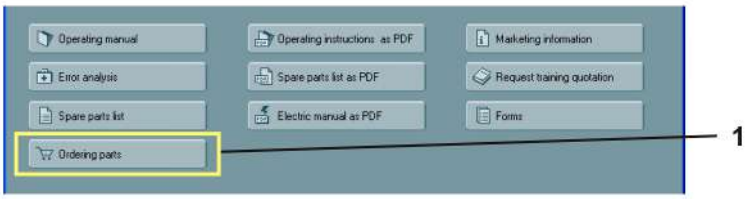

Figure 189: Directly opening the order form for spare parts

1. Click on the appropriate button to open the order form for spare parts 1.

6.6.25 “Filling” and “Saving” the Shopping Basket

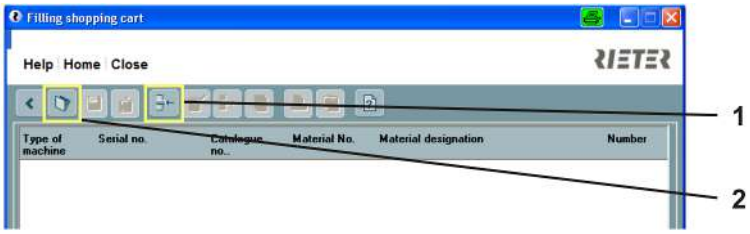

Figure 190: “Filling” and “saving” the shopping basket

1. Enter the information for spare parts in the order form 1. Enter the data manually.
2. Save the shopping basket information 2.

6.6.26 Closing the E-DOC Program

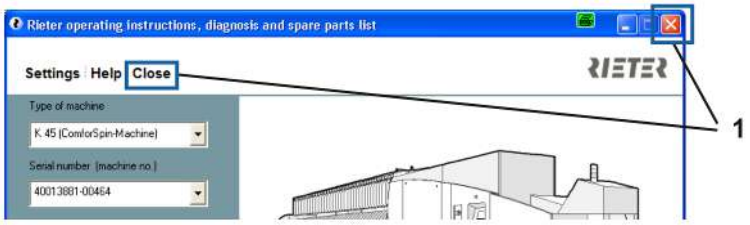

Figure 191: Closing the e-DOC program

Click on the appropriate button to close the e-DOC program 1.

6.7 Working with the BuR Basic Module

6.7.1 Basic Module

1. Perform a cold start

Carrying Out a Cold Start ▸ 170

6.7.2 Working with Parts of the Basic Module

– Change the battery

Removing the battery from the control system ▸ 271

Mounting the battery in the control system ▸ 272

Change battery of control system ▸ 271

– PCMCIA data storage card

Switch off write protection ▸ 173

Software exchange between memory card and control system ▸ 171

– Set IP address for Ethernet interface

Setting the IP address ▸ 174

6.8 CAN Node Module

6.8.1 Switch Settings

Make settings

Set the CAN Node Address of the CAN I/O Module CX408 ▸ 179

6.9 Upper Blend Module

6.9.1 Material Entry

6.9.1.1 Setting the Distributor Flap

Orientation Storage not Adequately Filled

In order to distribute the material in the storage unit, the program-controlled flaps swivel back and forth. The pause duration for the flap on either side of the machine can be set via a data screen.

Setting aim: Uniform distribution of the material in the storage unit.

Setting the Swivel Motion of the Flaps

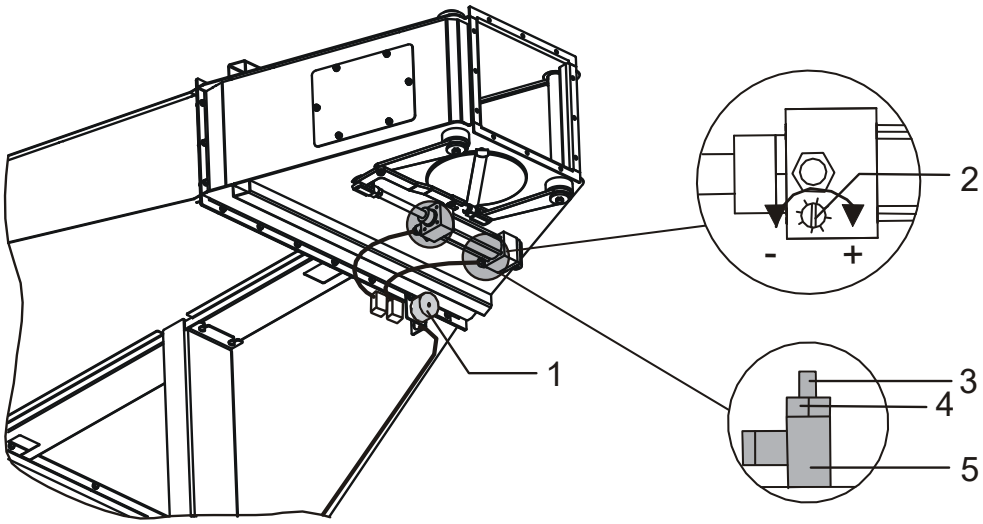

Figure 192: Setting the distributor flap

Prerequisites Make sure that the criteria are obeyed:

✓ Select the data screen.
Menu 40: "40 Setup Values, General" ▸ *100*

1. Set the pause duration for the flap on either side of the machine via the data screen. (The relative positions of the flaps are determined as a percentage.)

The storage unit must be evenly filled. Observe the filling process over a long period.

Setting the Regulating Valve

1. Set the pressure at the regulating valve 1 to 3.0 bars.

Setting the End-Position Damping (Standard Setting)

1. Insert the screw 2 completely and then loosen it by 3 turns.

The damping is correctly set, if the flaps move easily but gently towards the end positions. If necessary, adjust accordingly.

Restriction Settings (Standard Settings)

1. Loosen nuts 4
2. Insert the screw 3 completely and then loosen it by 8 turns.

The restriction settings are correct, if each flap completes its back-and-forth motion within a period of 3 seconds. If necessary, adjust accordingly.

6.9.1.2 Adjust the Pressure Sensor

Orientation Production is not Reached

Storage not Adequately Filled

Description ▸ 52

By means of the correct adjustment of the pressure sensor 2 filling of the storage 1 is influenced.

Setting aim: The storage unit 1 should be filled as much as possible. However, blockages around the material inlet are to be avoided.

Determining the Fill Height

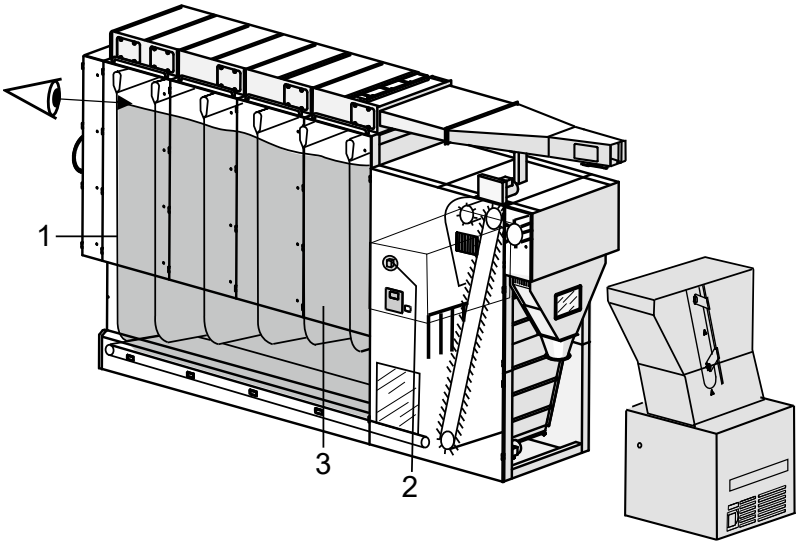

Figure 193: Adjust the pressure sensor

1. Check the fill height in the storage unit 1 and the distribution in the chambers 3.

Adjust the Pressure Sensor

1. Based on the filling in the storage 1 increase or reduce the value in the corresponding data screen.

If the filling in the storage is too deep, a higher value must be set in the data screen.

Menu 40: "40 Setup Values, General" ▸ *100*

See also

Material Entry [▸ 52]

6.10 Separating Vanes

6.10.1 Adjust the Separating Vanes

Orientation

Production is not reached

Blockages in the machine

Storage not adequately filled

Prerequisites

Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Description Separating vanes

The separating vanes can be adjusted in height and in three different positions. The best settings must be determined by trial and error.

Setting aim: The separating vanes must be adjusted so that all chambers are filled as uniformly as possible.

Set the Height of the Separating Vanes (Standard Setting all Materials)

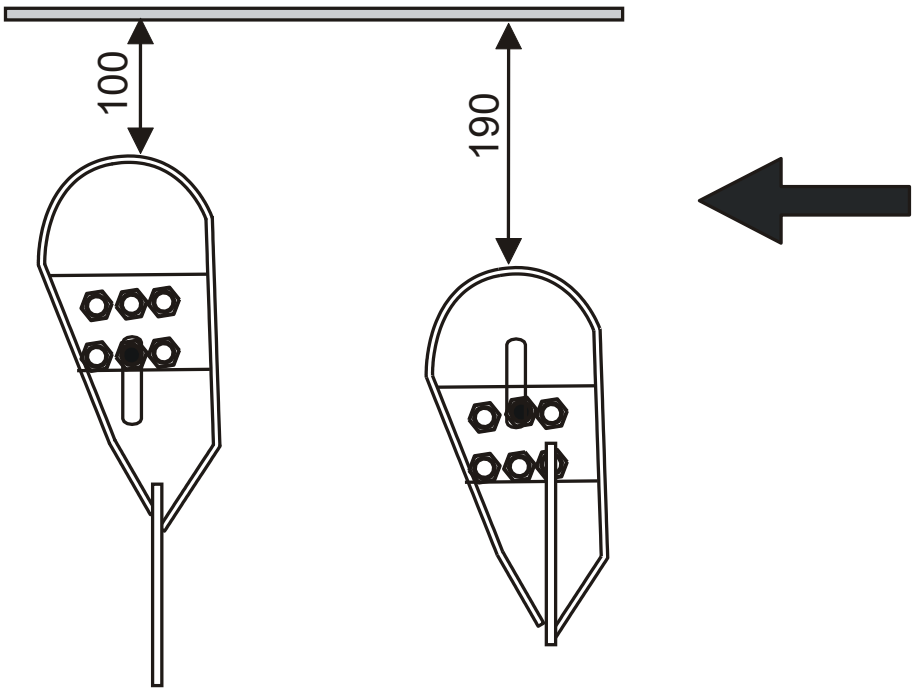

Figure 194: Set the height of the separating vanes

1. Set the height so that the next chamber is optimally filled.
   ⇨ Reducing the distance leads to an increase in air speed and vice versa.

Adjust the Tilt to the Rear

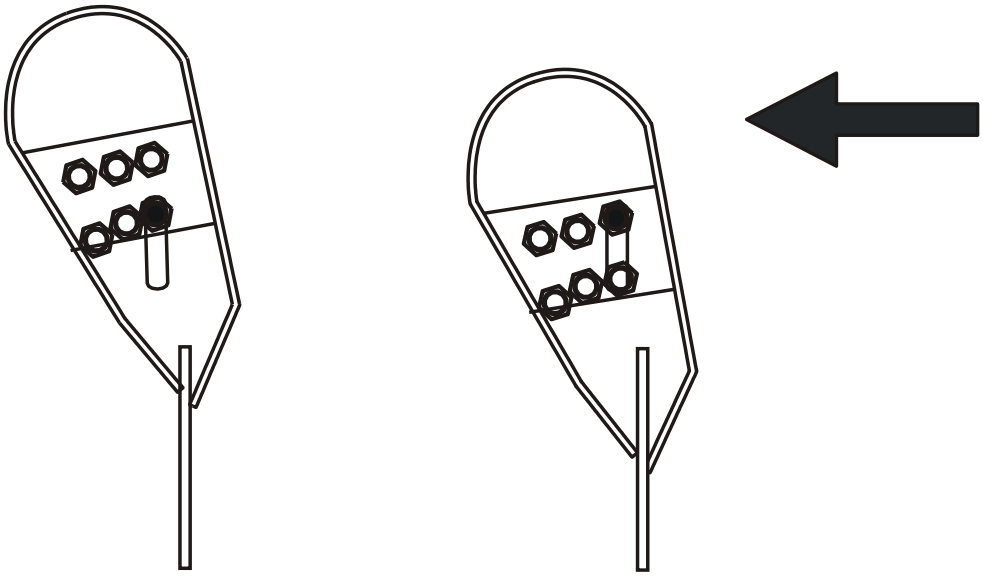

Figure 195: Adjust the tilt to the rear

1. Adjust the tilt to the rear if the chambers overfill or if the material remains on the separating vanes.

Adjust the Tilt Forward

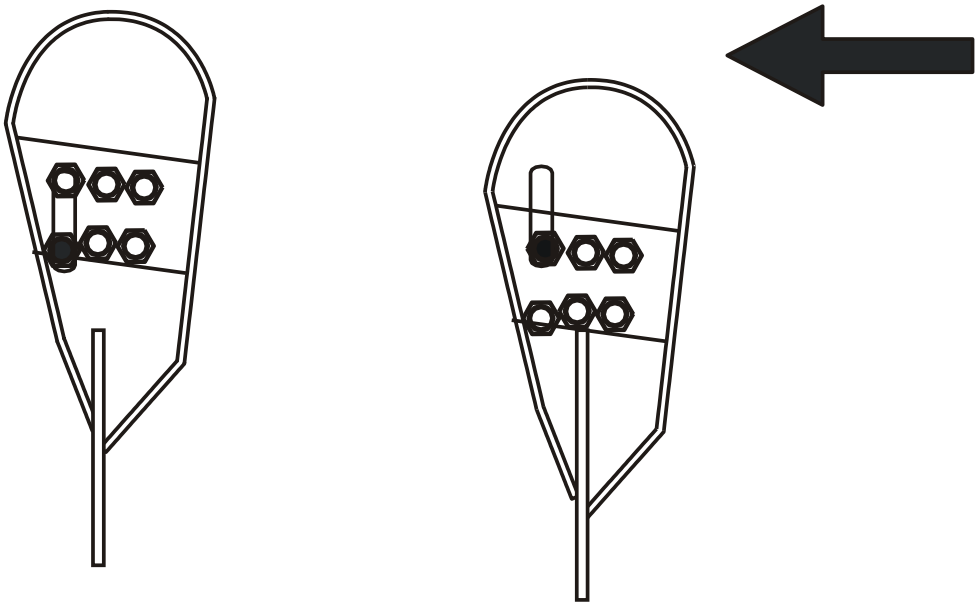

Figure 196: Adjust the tilt forward

1. Adjust the tilt forward if a better separation of the material is required at that point.

6.11 Exhaust Air

6.11.1 Exhaust Air

Production is not reached

Blockages in the machine

Storage not adequately filled

Open transfer

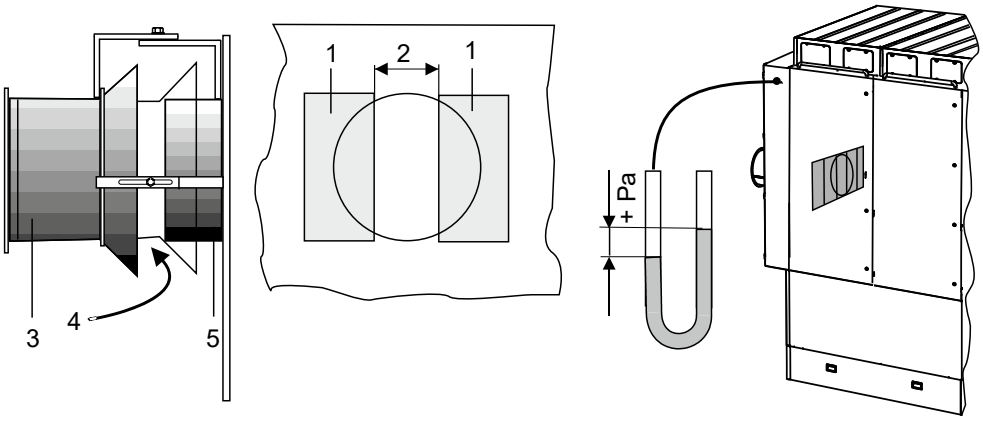

Figure 197: Exhaust air

The pressure can be set using the cone tube 3 for the secondary air and the sliders 1. With the transfer 4 open dust-laden air must not be allowed to blow out. At all events, the cone 3 must be positioned closer.

Setting aim: There should be a slight overpressure in the exhaust air duct («X»).

Exhaust Air

Overpressure	+20 - +40 Pa

6.12 Delivery Section

6.12.1 Making Fill Height and Fill Quantity Settings for the Dynamic Storage Unit

Orientation Dynamic Storage Unit at Spiked Lattice

The fill quantity in the dynamic storage unit has to be greater for large production than for small production.

The positions of the light barriers 2 and 3 affect the fill properties of the dynamic storage unit. The greater the distance of the light barrier from the spiked lattice, the larger the fill quantity in the dynamic storage unit. The conveyor belt transports no more material towards the spiked lattice, once the light beam 1 has been broken.

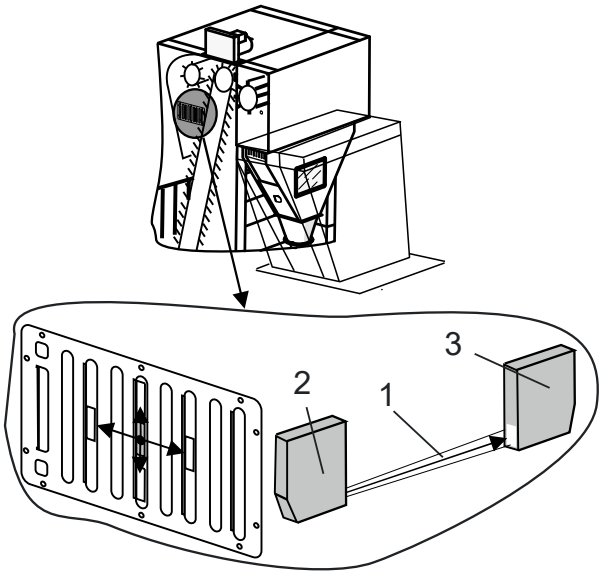

Figure 198: Making fill height and fill quantity settings for the dynamic storage unit

1. Set the required fill height by appropriately adjusting the horizontal and / or vertical positions of light barriers 2 and 3.
2. Set the emitter 2 in such a way that the light beam 1 is directed towards the centre of the receiver 3.

6.12.2 Stripper Rake

6.12.2.1 Adjust the Stripper Rake

Orientation Blockages in the machine

Description Stripper rake ▸ 54

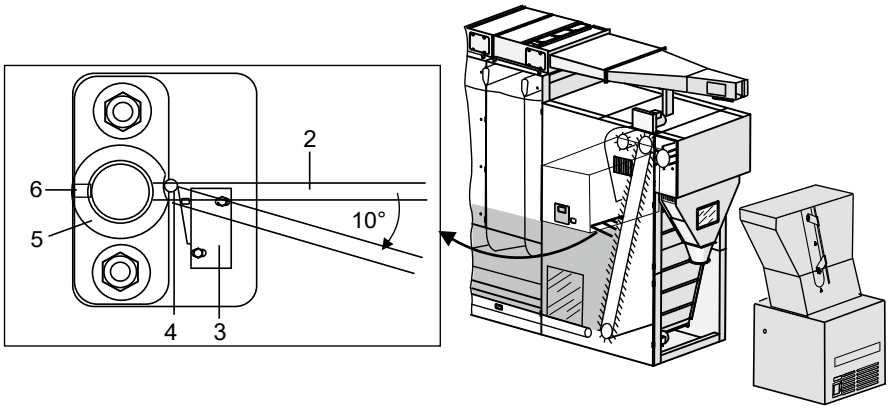

Figure 199: Adjusting the stripper rake_2

1. Urge the rakes 2 completely upward.
2. Loosen the gudgeon 6.

3. Adjust the setting collar 5 so that the terminal switch roller 4 lies in the recess.
4. Tighten the gudgeon 6. The limit switch 3 must not respond until the rake has moved down about 10°.

6.12.3 Opening Roller

6.12.3.1 Position of the Opening Roller to the Spiked Lattice (Standard Setting)

Orientation Settings

This is factory-set. The setting has to be checked only after replacement of the electric cylinder.

Preparatory work

Introduce the electric cylinder entirely in the test program (data screen 82.5)

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

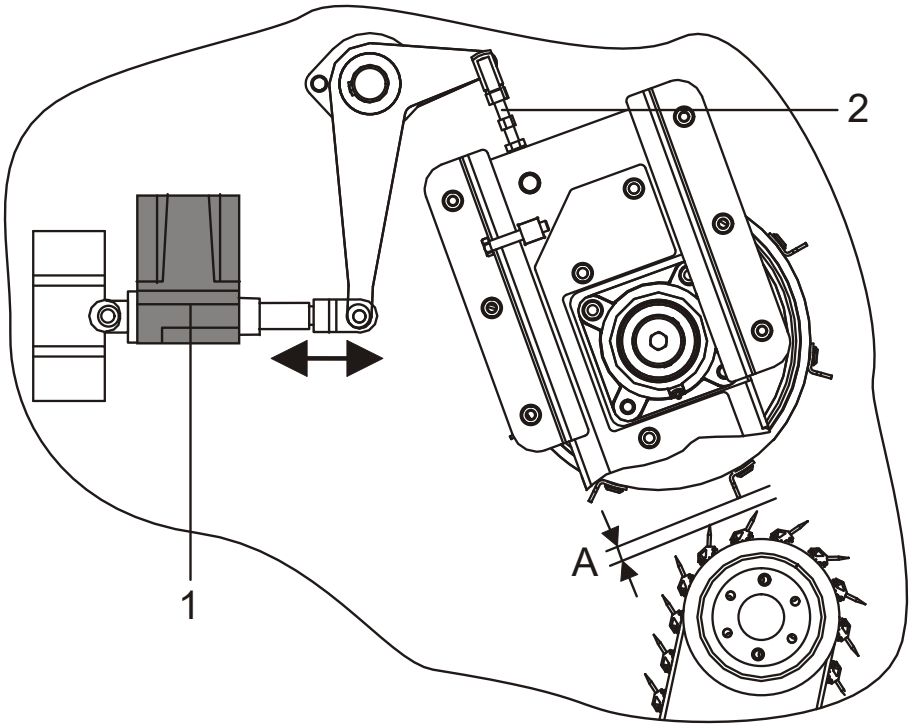

Figure 200: Position of the opening roller to the spiked lattice

The electric cylinder 1 is retracted.

82.5 ▸ 109

1. Using the universal rod 2 set the minimum spacing «A».

Distance “A”: Minimum distance between the tips of the upright lattices and the opening roll.	5.0 mm

6.12.3.2 Stop Production

Orientation

Production is not reached

Blockages in the machine

If the speed of the spiked lattice is not sufficient to achieve a specific production, the degree of opening for the material has to be changed.

The opening roller setting primarily affects the degree of opening.

For constant spiked-lattice speeds, the production rate is also affected.

If the opening roller is positioned closer to the spiked lattice, the tufts will be smaller.

In some circumstances, the spiked-lattice speed has to be increased so that the required production rate can be achieved.

0.0 => lowest degree of opening for the material. 1.0 => highest degree of opening.

Setting aim: By adjusting the parameter values appropriately, the ideal setting for the production can achieved. No parameter should be set to its maximum value, however.

Setting the Speed of the Spiked Lattice (Production Level: UNImix and R/S Module)

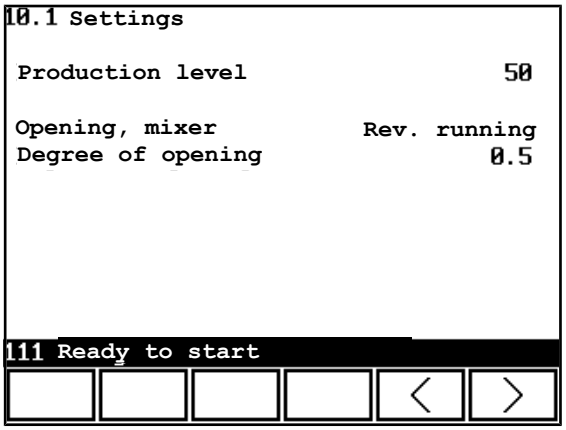

Figure 201: Data screen 10.1 Settings

Prerequisites

Make sure that the criteria are obeyed:

✓ If the desired production is not attained by means of the speed of the spiked lattice, the rate of opening of the material will have to be reduced.

1. Production can be adjusted in steps by gradually altering the speed of the spiked lattice.

⇨ **R/S module**: Changing the speed of the spiked lattice will also cause the speed of the feed rollers in the module to change. The production rate of the module increases.

Upright lattice speed ranges

Minimum speed for spiked lattice	Level 20
Maximum speed for spiked lattice	Level 100

Direction of Rotation of the Opening Roller

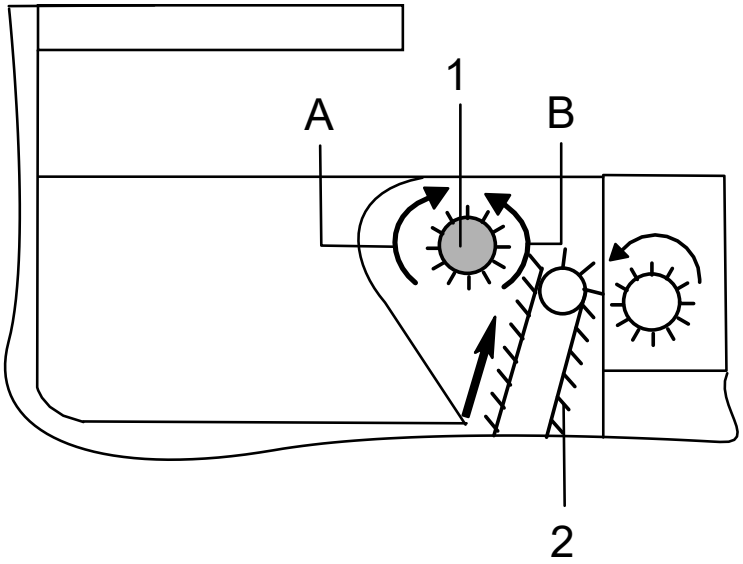

Figure 202: Direction of rotation of the opening roller

As a standard setting, the opening roller 1 “goes against the flow” A, i.e. runs in the direction opposite to that in which he spiked lattice 2 runs.

If production is insufficient, despite the production level and opening roller being set correctly, then attempts can be made with the opening roller “going with the flow” B.

1. The opening roller 1 will then run in the same direction B as the spiked lattice 2.
   ⇨ For this setting, the material will no longer be opened immediately.

Changing the Degree of Opening

By gradually changing the degree of opening, the production rate can be altered in steps, while maintaining the speed of the spiked lattice.

Degree of opening

Lowest degree of opening:	Level 0.1: Maximum distance between the opening roller and the spiked lattice.

Highest degree of opening:	Level 1.0: Minimum distance between the opening roller and the spiked lattice.

Adjusting the Production of the Module to the Production of the Blender

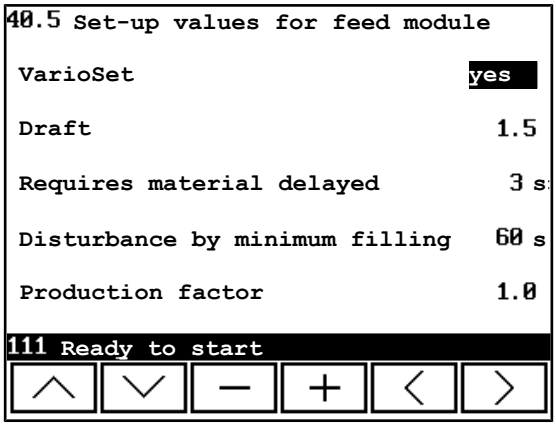

Figure 203: Data screen 40.5 Set-up values for feed module

Prerequisites Make sure that the criteria are obeyed:

✓ Along with the settings of data screen 10.1, the production rate of the module can be increased or reduced.

1. Select the data screen and change the factor value on the fifth line.

The feed chute must always be filled as much as possible.

Changing the production of the module

Value below level 1.0	Reduced production of the module
Value below level 1.0	Increased production of the module
Level 1.0	Standard setting

6.12.3.3 V-belt

6.12.3.4 Tighten the V-belt

Orientation Settings

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

The V-belts of the opening rollers must be tightened so that they can be pushed in at normal pressure.

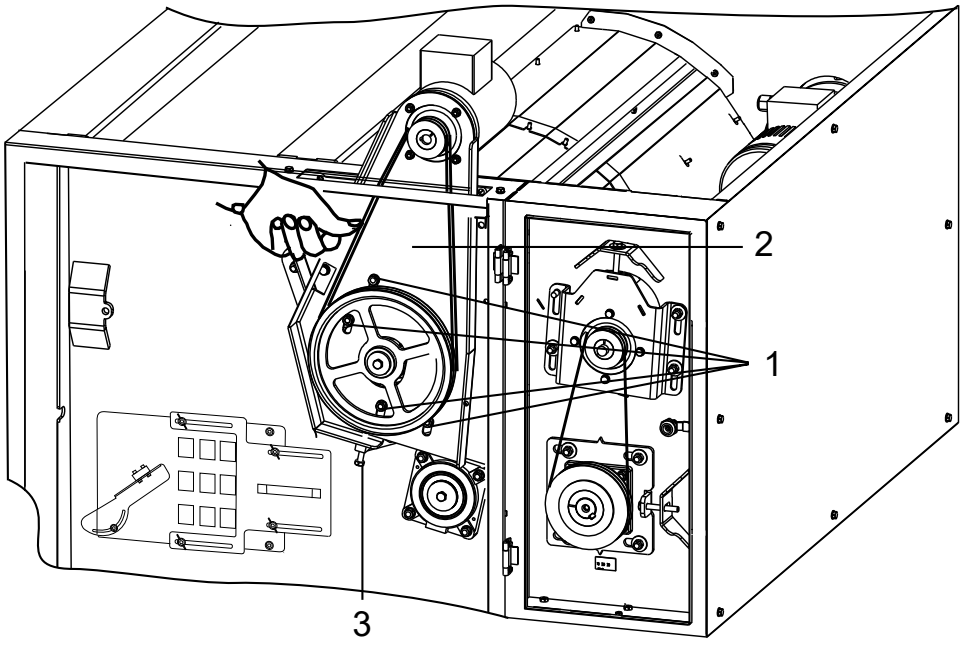

Figure 204: Tighten the V-belt

1. Loosen the four bolts 1.
2. Use bolt 3 to move the plate 2, which will tighten the belt.

The belt can be pushed in	Approx. 5 mm

6.12.4 Material Discharge

6.12.4.1 Positioning the Ball Bearing Races for the Take-off Roller

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

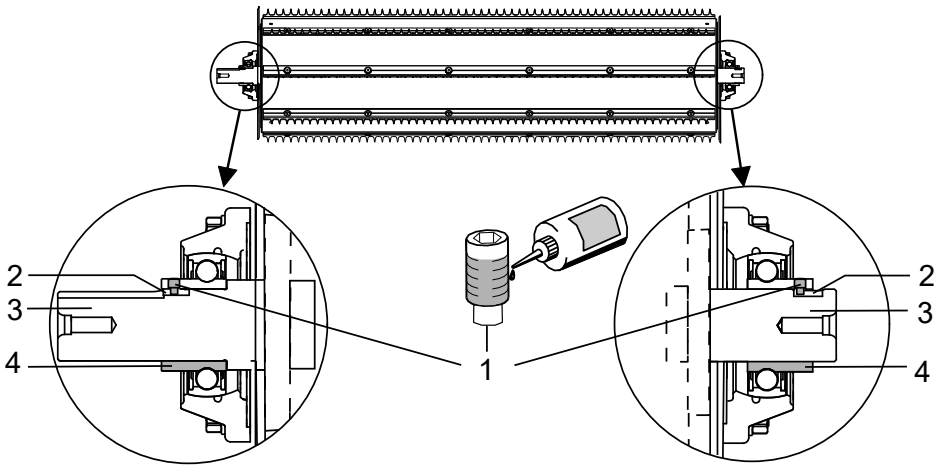

Figure 205: Positioning the ball bearing races for the take-off roller

1. At the installed take-off roller, precisely align the screw holes of the ball bearing races 4 with the grooves 2 of the bearing journals 3.
2. Coat the screws 1 with Loctite 243.

Orientation Loctite 243 is a non-setting product for securing screws.

1. Insert the screws 1 fully and then loosen them by half a turn.

The screws 1 are not used for fastening purposes, but to ensure the movement of the bearing races 4.

6.12.4.2 Distance of the Take-off Roller to the Spike Lattice

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Orientation Setting aim: Removing cotton from the spiked lattice

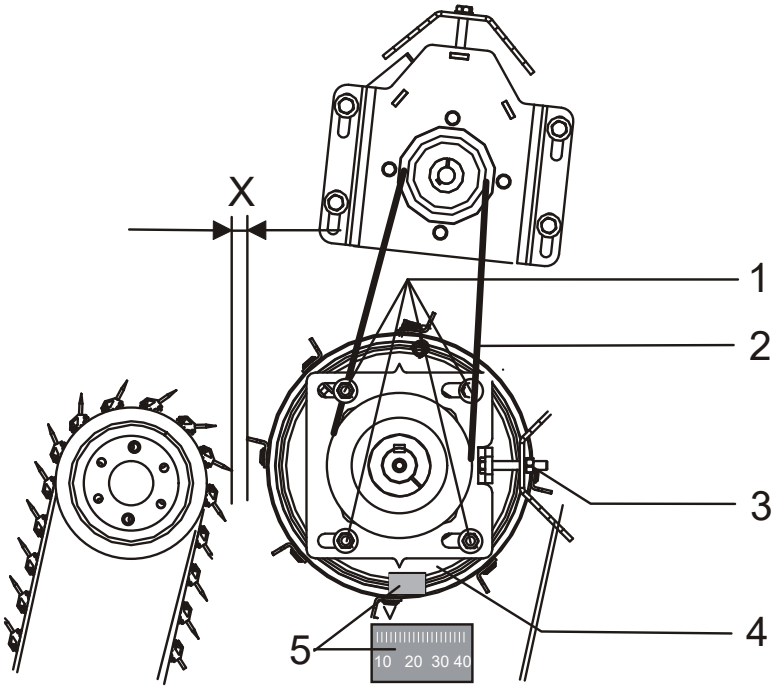

Figure 206: Distance of the Take-off Roller to the Spike Lattice

1. Loosen screws 1.
2. Use the nuts 3 to set take-off roller 4 to the corresponding position on the scale 5.

The distance from the take-off roller 4 to the spiked lattice must be identical on the left and the right side of the machine.

Clearance X	10 - 40.0 mm

1. After adjustment of the take-off roller 4 adjust the tension of the V-belt 2.

Tighten the V-belt ▸ 166

6.12.4.3 Tighten the V-belt

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Prerequisites Make sure that the criteria are obeyed:

✓ The V-belts of the take-off rollers must be tightened, so that they can be pushed in at normal pressure.

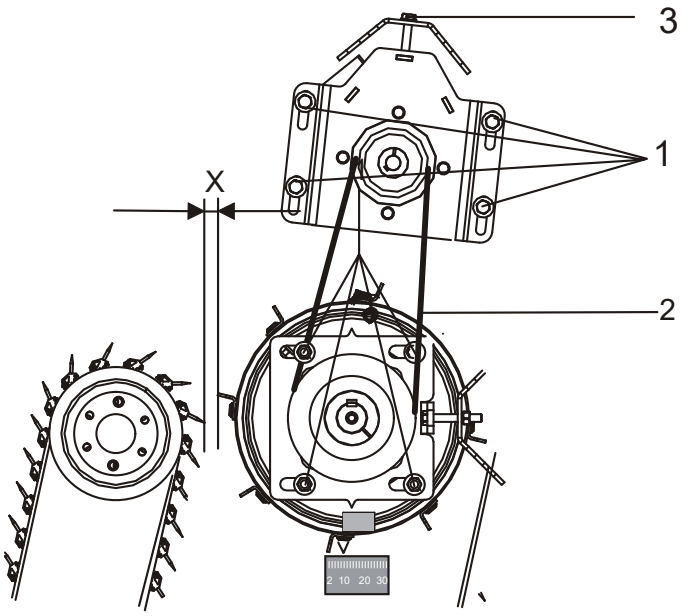

Figure 207: Tighten the V-belt

1. Loosen screws 1.
2. Use the screw 3 to tighten the belt 2.

The belt can be pushed in	Approx. 5 mm.

6.12.5 Chute Feed

6.12.5.1 Light Barriers

Orientation Feed Chute

The material height in the feed chute is dependent on the position of the top light barrier 1. The bottom light barrier 5 prevents the feed chute from becoming empty.

Top Light Barrier

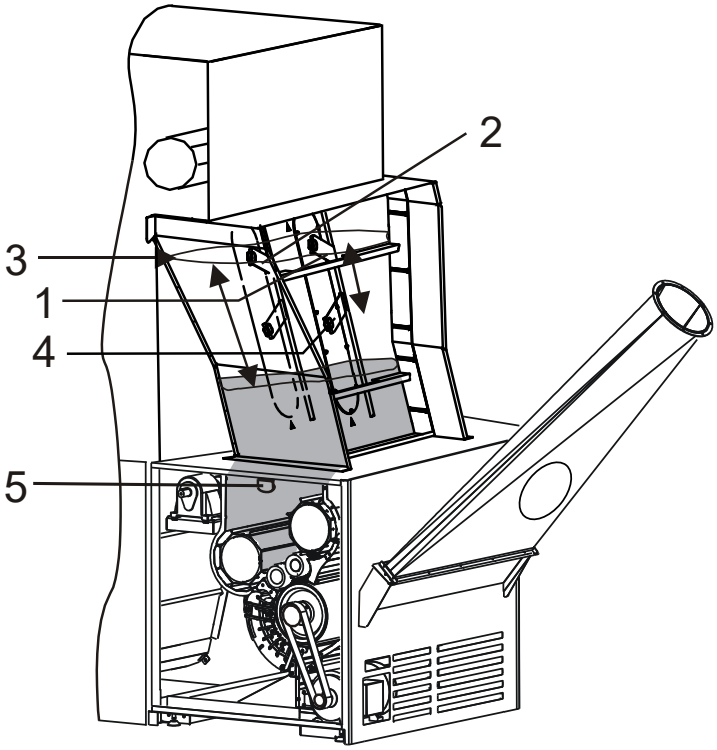

Figure 208: Light barriers

1. Position the light barrier 1 in such a way that the feed chute 3 can never overflow, but on the other hand a maximum material height is attained.

Precisely align the receiver 2 with the centre of the light barrier 1.

Prerequisites Make sure that the criteria are obeyed:

✓ If the top light barrier 1 at the feed chute becomes unobstructed, the material supply device (spiked lattice) is deactivated.

1. Set the amount of time until material is requested again.

Menu 40: "40 Setup Values, General" ▸ *100*

Middle Light Barrier

1. Position the light barrier 4 around the centre of the feed chute (basic setting).

The speed of the spiked lattice is higher when the light barrier 4 is free of obstruction.

1. If the filling of the feed chute is continually inefficient, place the light barrier 4 in a higher position.

Bottom Light Barrier

Prerequisites Make sure that the criteria are obeyed:

✓ The light barrier 5 detects when the minimum fill level is reached.

1. Set the amount of time between the detection of the reaching of the minimum fill level and the moment when a fault message is issued.

Menu 40: "40 Setup Values, General" ▸ *100*

6.12.5.2 Setting the Feed Chute Walls

Orientation Feed chute

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

If the material feed for the module is too compact, the feed chute wall has to be “closed” more.

The position of the feed chute wall 1 affects the volume of material feed in the feed chute.

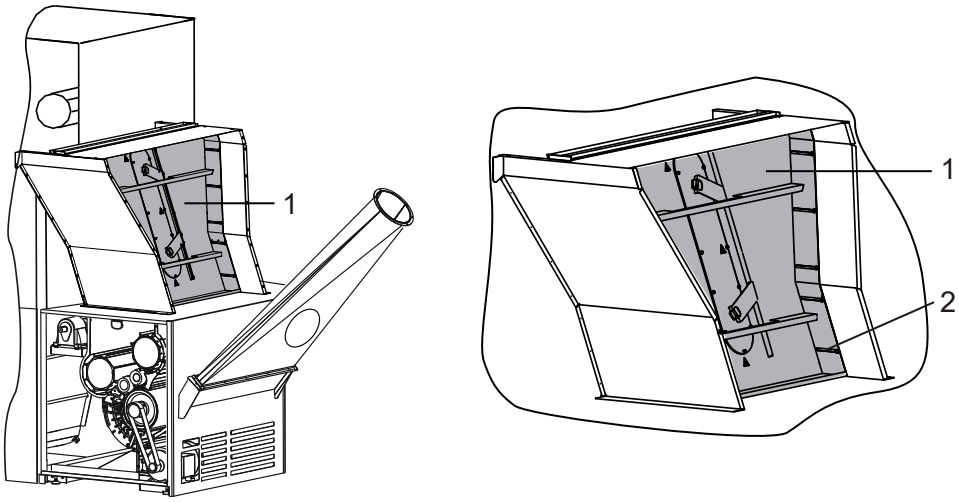

Figure 209: Setting the feed chute walls_2

Prerequisites Make sure that the criteria are obeyed:

✓ Feed material is too light or too heavy.

1. Loosen all screws 2 on both sides.
2. Re-position the feed chute wall 1 according to the material feed required, ensuring that it always remains parallel with its original position while being moved.

6.12.6 R/S Module

6.12.6.1 Differential Pressure Switch

R/S Module

NOTICE

If the vacuum is below the specified minimum value, the suction points will not be cleared of waste correctly!

Blocked suction points affect the extraction of waste and can lead to machine damage.

▶ The minimum vacuum setting, for which the machine is switched OFF, must not be lower than this value.

The differential pressure switches 6 and 7 monitor the vacuum during waste extraction or material delivery.

Setting aim: The minimum vacuum setting will be monitored. The machine switches off, if the measured vacuum drops below the value set at the dial.

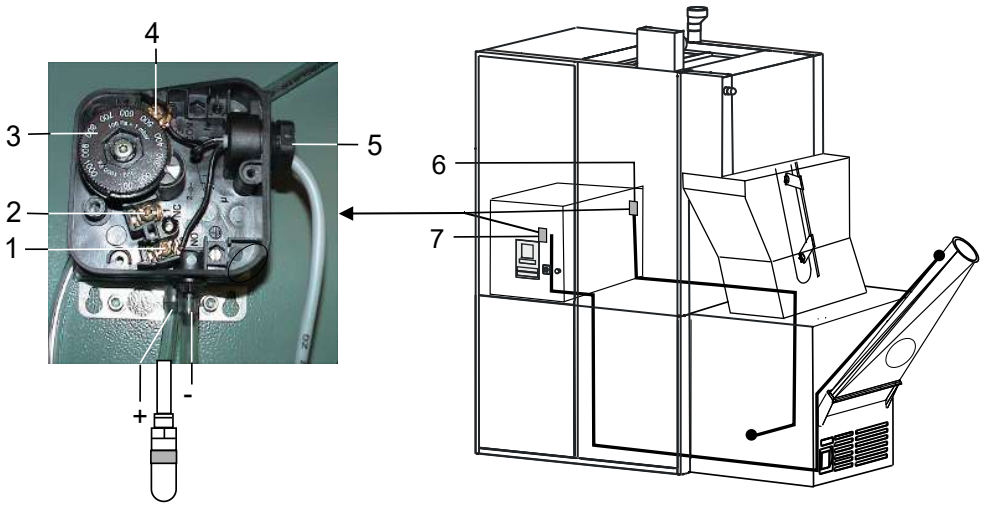

Figure 210: Differential pressure switch

+	No connection made here	-	Connection point for suction unit
1 NO	Opens if the vacuum drops	2 NC	No connection made here
3	Dial	4 COM	Input voltage
5	Threaded connection point	6	Differential pressure switch for monitoring the vacuum for waste extraction
7	Differential pressure switch for monitoring the vacuum at the material delivery section of the machine		

Use the dial 3 to set the required value.

Monitoring of Minimum Vacuum Settings

Waste extraction: Minimum static vacuum	min. – 600 Pa
Material delivery: Minimum static vacuum	min. – 150 Pa

See also

Differential Pressure Switch [▶ 168]

6.13 Control Technique

6.13.1 Basic Module of the Control System

6.13.1.1 Carrying Out a Cold Start

Orientation Working with the BuR basic module

Description Basic module of the control system ▶ 55

A cold start will reset the control unit to its original state.

Setting aim: A cold start means that the working memory of the machine control unit is erased. The input values are reset to the default values (default settings). A cold start may become necessary, if the control unit fails to start correctly.

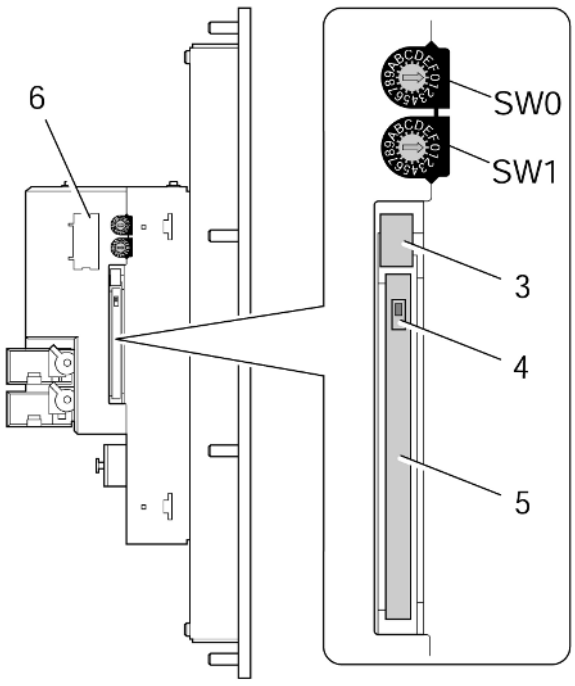

Figure 211: Carrying out a cold start

1. Switch off the main switch.
2. Remove the cover from the control unit.
3. Adjust the Rotary switches SW0 and SW1.

Switch Position for Cold Start

SW0	F
SW1	F

1. Switch on the main switch, and then switch off again after about 20 seconds.
2. Adjust the Rotary switches SW0 and SW1.

Switch Positions for Normal Operation

SW0	1
SW1	0

1. Switch on the main switch again.
   ⇨ The working memory of the machine control unit is erased. The default values (default settings) are active once more.
2. The data (set-up values) must now be re-entered.

System Functions ▸ 116

Finishing

Re-mount the hood of the control unit.

6.13.1.2 Compact Flash Card

6.13.1.3 Software Exchange between Memory Card and Control System

Orientation Loading Software

Replacing the Operating Unit (Including the Control Unit) ▸ 227

Working with the BuR Basic Module ▸ 152

Copy software from the memory card onto the control system or vice versa. A memory card (PCMCIA card) is required with a minimum of 4 MB.

Preparatory Work

1. Note the positions of the two rotary switches SW0 and SW1, so that they can be reset to their original positions after copying.
2. If the memory card is to be overwritten, the write-protection must be deactivated.
   Switch Off Write Protection ▸ 173

3. You will have to record/write down all the settings contained in the data screens, if the control system is to be overwritten.
4. Turn off the main switch of the machine.
5. Set the rotary switches SW0 and SW1, according to the direction of the data exchange.

Rotary Switch Setting for Software Exchange

From memory card to control unit	SW0=4 and SW1=F
From control unit to memory card	SW0=2 and SW1=F

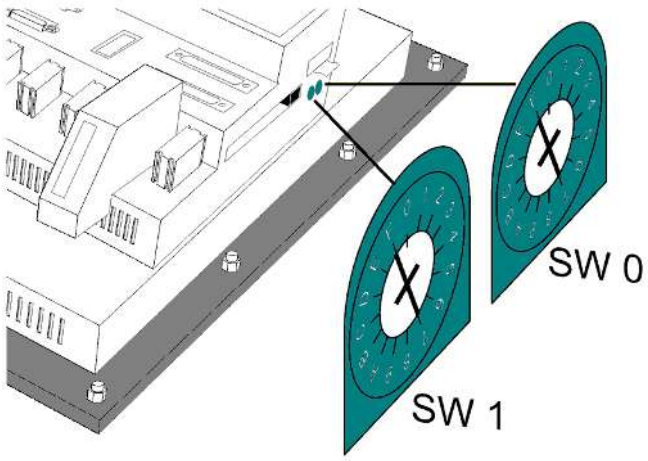

Figure 212: Software exchange between memory card and control system

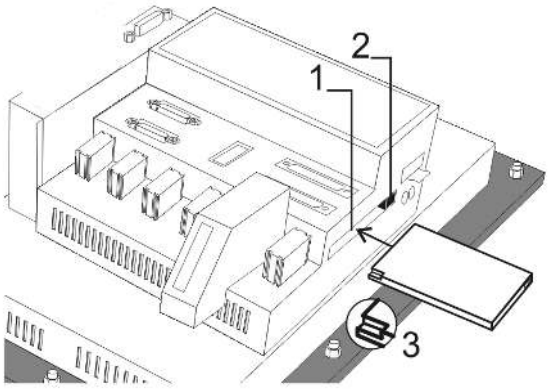

Figure 213: Software exchange between memory card and control system_1

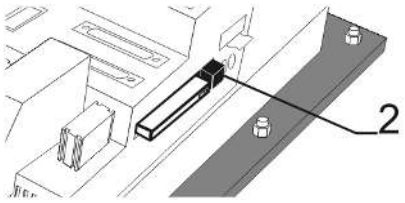

Figure 214: Inserted correctly

1. Insert the memory card in the slot 1. Here, the cut-out 3 in the memory card needs to be located on the opposite side of the ejection button 2.

The memory card is not inserted correctly unles the ejection key 2 is out.

1. Turn on the main switch again.
2. Watch the status LED. The LEDs "Mode", Ready" and "Run" are lit up during the copying process.
3. Wait until the RUN LED (green) and the READY LED (yellow) are flashing. Then the software update is finished.

If the ERROR LED (red) flashes, the software update was not successful. In this case, repeat the process or contact Rieter Service.

1. Turn OFF the main switch of the machine.
2. Eject the memory card by pressing the eject key 2 and remove.
3. Perform a cold start.

Carrying Out a Cold Start ▸ 170

1. Turn on the main switch again.

Prerequisites Make sure that the criteria are obeyed:

✓ If the control system has been overwritten:

1. Re-enter the settings in the data screens.

You can see from the software version whether copying has been successful.

6.13.1.4 Switch Off Write Protection

Working with the BuR basic module ▸ 152

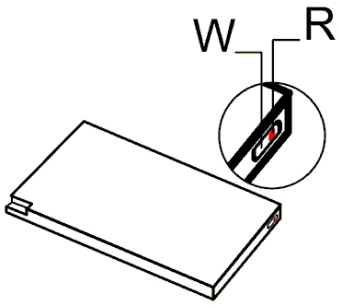

Figure 215: Switch off write protection

The small switch ON the memory card allows the write protection to be switched ON and OFF.

Setting aim: If data need to be transferred to the memory card the write-protection must be switched OFF.

Protective writing

No	Position (R) = "read"
off	Position (W) = "write"

6.13.1.5 Ethernet Interface 3IF of the Control System

6.13.1.6 Setting the IP Address

Orientation Replacing the operating unit (including the control unit)

Working with the BuR basic module ▸ 152

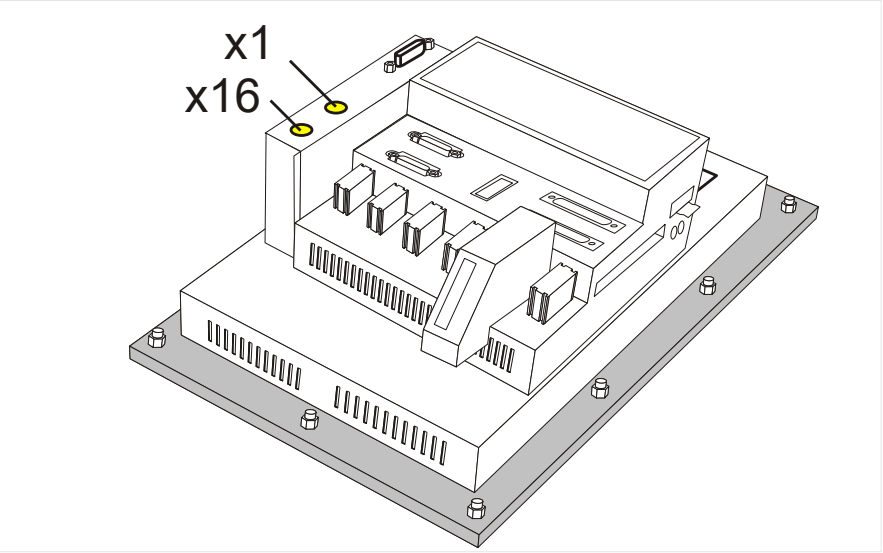

Figure 216: Setting the IP address_1

The IP address is the communication address in the Ethernet system.

The final two digits of the IP address are variable, and must be set at the x16 and x1 switches.

Setting aim: Each machine in the Ethernet network must be assigned an unambiguous IP address.

Interface to external system	SPIDERweb

Setting the IP Address

dez	hex	dez	hex	dez	hex	dez	hex
0	00	16	10	32	20	48	30
1	01	17	11	33	21	49	31
2	02	18	12	34	22	50	32
3	03	19	13	35	23	51	33
4	04	20	14	36	24	52	34
5	05	21	15	37	25	53	35
6	06	22	16	38	26	54	36
7	07	23	17	39	27	55	37
8	08	24	18	40	28	56	38
9	09	25	19	41	29	57	39
10	0A	26	1A	42	2A	58	3A
11	0B	27	1B	43	2B	59	3B
12	0C	28	1C	44	2C	60	3C
13	0D	29	1D	45	2D	61	3D
14	0E	30	1E	46	2E	62	3E
15	0F	31	1F	47	2F	63	3F

Figure 217: Setting the IP address_2

1. Turn off the main switch of the machine.
2. Turn the two Rotary switches to set the final two digits. Example: set the decimal number “21” for the IP address 172.27.10.21.

Set x16 rotary switch position to “1” and x1 rotary switch position to “5” (since the hexadecimal number “15” is equivalent to the decimal number “21”).

Rotary Switch

X1	Last digit
X16	Second-last digit

1. Turn ON the main switch again.
2. Check the IP address in the following data screen.

Data mask	30.1

6.13.1.7 Description

The control system includes the following interfaces and modules:

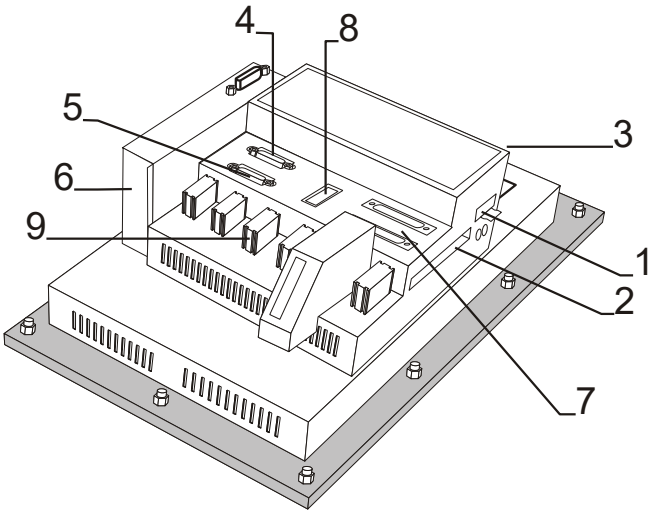

Figure 218: Basic module of the control system

1	Battery compartment	2	PCMCIA slot
3	6 status LEDs	4	CAN interface
5	RS232 interface	6	Ethernet interface
7	Digital inputs and outputs	8	24 V DC power supply
9	Expansion slots for additional IO modules		

Purpose: Control System for the Machine

The machine control system 1 contains the program for the operating unit 2 as well as for the control system of the machine.

Controls all machine functions.

– **Condition: Status indicator of the control system via LEDs**

The 6 LEDs indicate the various possible states of the control system.

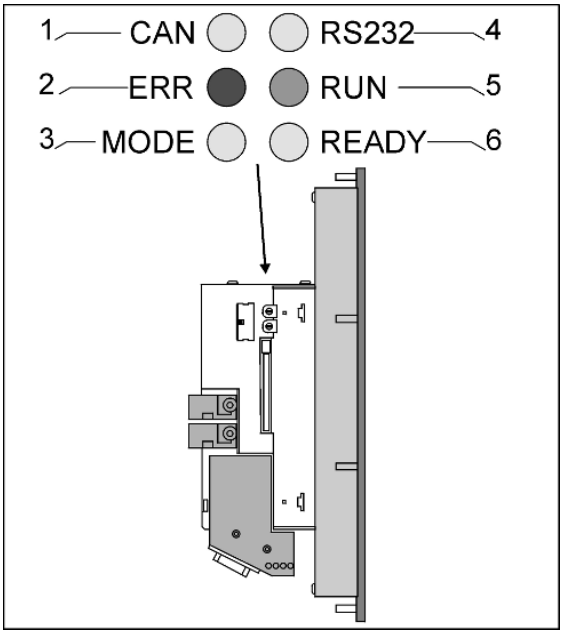

Figure 219: Status indicator of the control system

1	flashes yellow when data is being transmitted from or to the CAN controller	2	lights up red in service mode
3	lights up yellow when programming the Flash-PROM	4	flashes yellow when data is being received or sent at the RS232 interface
5	lights up green in RUN and Service modes	6	lights up yellow in service mode

6.13.2 Bus Systems

6.13.2.1 Terminating Resistor for CAN Bus

6.13.2.2 Setting or Wiring in the Terminating Resistors for the CAN-Bus

Replacing the Operating Unit (Including the Control Unit) ▸ 227

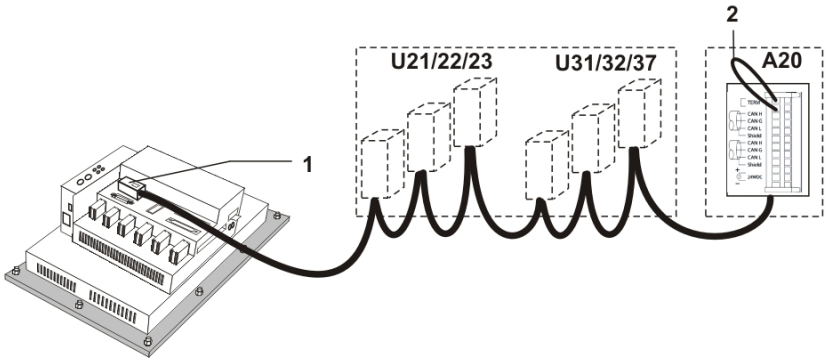

Figure 220: Setting or wiring in the terminating resistors for the CAN-Bus

Setting aim: A terminating resistor must be present at the first and last connection so that the CAN-Bus can function correctly.

Setting the Terminator at the Sub-D Connector

The switch on a D-Sub plug 1 must be set on "ON".

Wire the Terminator.

On the A20 module, a bridge 2 to the “Term” terminals must be fitted.

Finishing

Check that a terminating resistor has only been wired in on the first and last connection.

6.13.3 External I/O Card

6.13.3.1 CAN IO Module CX408

6.13.3.2 Checking CAN I/O Module CX408

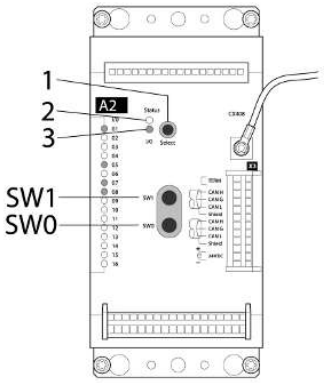

Figure 221: Checking CAN I/O module CX408

Orientation Use the LEDs to test the CAN I/O modules CX408 and their inputs and outputs.

You can use the 16 LEDs to test the status of the inputs and outputs.

The 16 LEDs indicate the state of either the inputs or the outputs.

1. Use the switch 1 to change over the LEDs. If LED 3 lights up green, the 16 LEDs are indicating the state of the inputs.

If LED 3 lights up yellow, the 16 LEDs are indicating the state of the outputs.

1. Use LED 2 to check whether the module is working properly during operation.

If the LED is green, the module is working properly.

If the LED flashes yellow, the supply voltage of the outputs is incorrect.

If the LED lights up yellow, the outputs are defective.

Action

Check of the LED indicates a fault.

1. Possibly replace module or feed and check the wiring.

6.13.3.3 Set the CAN Node Address of the CAN I/O Module CX408

Orientation Replacing the operating unit (including the control unit)

CAN node module ▸ 152

Via two rotary switches an address specified by Rieter is set on each module on the CAN bus.

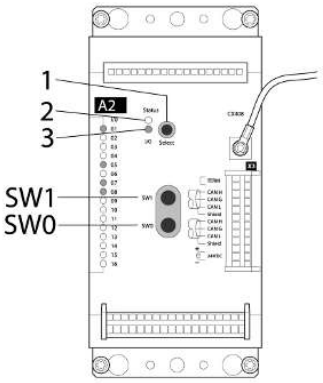

Figure 222: Set the CAN node address of the CAN I/O module CX408

1. Set the rotary switch SW0 and SW1.

The following correct setting is important, otherwise the connection to the control system will not work.

Addresses for A20 CAN Nodes

SW0	2
SW1	4

7 Troubleshooting

This chapter contains the information about the fault list with the cause and remedies of software, production, and machine faults.

7.1 About the Fault Message Lists

The fault message lists contain maximum 5 columns. The columns contain the information that follows:

Table Head	Explanation
Fault code	The fault code is the number of the fault.
Fault text	A short text with the description of the fault shows on the operating unit.
Fault cause	The fault cause shows the condition that started the fault. 1 or more causes are shown. If necessary, the top field for a fault cause gives more information, such as the machine unit.
Remedy	The remedy shows the alternatives how to correct the fault.
Fault type	The fault type shows icons that give the alarm level of the fault. See the table below.

Alarm Level	Fault icon	Influence on production	Explanation
Alarm		The production stops.	The alarm immediately stops the production of the machine. No production is possible until the fault is repaired. The fault cause is in units or functions. The units or functions stay in the fault condition or delete the fault condition automatically on specified conditions. The alarm can refer to the machine or a procedure. The alarm shows on the operating unit. The alarm shows with a signalization. Only the primary fault shows. Secondary faults, caused by the primary faults, are frequently not signaled.
Warning message		The production continues, but the output may be decreased.	The warning messages do not immediately decrease the production. Steps must follow as soon as possible to prevent that the production goes down. Works are necessary to prevent a production stop.

Alarm Level	Fault icon	Influence on production	Explanation
			The fault cause is in units or functions. The warning message can refer to the machine or a procedure. The warning message shows on the operating unit. The warning message shows with a signalization. Subject to the fault cause, a warning message can get an alarm at any time.
Maintenance warning		The production continues.	A maintenance warning tells the maintenance personnel to do specified works at the machine. The maintenance warnings are not caused by a maintenance schedule. The maintenance warnings are caused by a monitoring software for the machine units. A maintenance warning always refers to the machine. The 2 types of maintenance warnings are: – Do the maintenance as soon as possible. Get maintenance personnel in less than a day. – Do the maintenance during the next timed maintenance interval. The maintenance warning shows with a signalization. Subject to the fault cause, a maintenance warning can get an alarm at any time.

Data in curly brackets {…} are placeholders for a variable number or a variable text in the fault message.

7.2 About Error Messages

7.3 Classification of Error Messages

The 2 types of error messages are warning and error. The warning messages are used to show, for example, when the can is full or empty. When a warning message shows, the procedure continues; but an intervention by the operator is necessary.

The error messages are shown when the procedure stops and an operator's intervention is necessary.

7.4 Deleting Error Messages

The error messages need to be deleted after the error is corrected. The deletion must be done in the data screen.

7.5 Faults Not Shown on the Display

The operator identifies the fault that is not shown on the display when the machine is in the operating state.

7.6 Faults Shown on the Display

The faults of the machine are shown in the operating unit of the machine.

7.7 Explanation on this Section of the Operating Instructions

7.8 Operator Interface Panel

7.8.1 Malfunction

Code	Designation Reaction/Consequences	Cause	Remedy
201	SW fault	Internal monitoring of software has been triggered	Contact Rieter Reveal the display text of Code 201 in data screen 31.4
202	SW timeout	Internal time-monitoring of software has been triggered.	Contact Rieter Reveal the display text of Code 202 in data screen 31.4
203	Data initialized	Triggers a cold start procedure when started	Enter values into data screens during cold start
210	Emergency stop, control panel S10	No response from EMERGENCY STOP button	Disengage the EMERGENCY STOP button Check EMERGENCY STOP button and wiring
211	Doors open	Doors open	Doors close

Code	Designation Reaction/Consequences	Cause	Remedy
		No signal from limit switch	Check the functioning and connection of the limit switch; replace, if necessary. *Menu 81: "81 IO Tests"* ▸ *107*
212	Safety circ. relay triggered ON K11	Fault	Switch the main switch off and then on again
		EMERGENCY STOP button	Check the functioning and connection of the Emergency STOP button; replace, if necessary.
		Attach the relay contacts using adhesive	Check functioning and setting
		Safety switch	Check the functioning and connection of the safety switch; replace, if necessary. *Menu 30: "30 Information, General"* ▸ *93*
213	Safety circ. relay trigger OFF K11	Fault	Switch the main switch off and then on again
		EMERGENCY STOP button	Check the functioning and connection of the Emergency STOP button; replace, if necessary.
		Safety switch	Check the functioning and connection of the safety switch; replace, if necessary *Menu 30: "30 Information, General"* ▸ *93*.
214	Hardware fault A11	Fault	Switch the main switch off and then on again
		CAN bus, no communication	Check CAN bus wiring.
		Faulty hardware	Check connections

Code	Designation Reaction/Consequences	Cause	Remedy
			Replace A11 module (electric circuit diagram)
215	Hardware fault CAN-module A20	Fault	Switch the main switch off and then on again
		DIP switches of CAN bus are incorrectly set	Set SW0 and SW1 DIP switches according to the electric circuit diagram
		CAN bus, no communication	Check CAN bus wiring.
		24 V supply voltage unit is faulty	Check wiring
		A 20 module is defective	Replace A 20 module
216	Monitoring delivery suction B1	No vacuum	Check fan
		Pressure switch	Correctly set the pressure switch Check plastic pipe to pressure switch
		Delivery section is blocked	Clear out material Correctly set the air volume rate Check transport fan Check motor and drives
217	Power supply F2	Automatic circuit breaker for the R/S module feed has been triggered	Check the setting for the automatic circuit breaker
220	Initialization, converter U21	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		CAN bus, no communication	Check CAN bus wiring.
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter

Code	Designation Reaction/Consequences	Cause	Remedy
221	Converter - type U21	Fault	Switch the main switch off and then on again
		Incorrect type of frequency converter	Use a Rieter frequency converter.
222	Initialization, converter U22	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		CAN bus, no communication	Check CAN bus wiring.
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
223	Converter - type U22	Fault	Switch the main switch off and then on again
		Incorrect type of frequency converter	Use a Rieter frequency converter.
224	Initialization, converter U23	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		CAN bus, no communication	Check CAN bus wiring.
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
225	Converter - type U23	Fault	Switch the main switch off and then on again
		Incorrect type of frequency converter	Use a Rieter frequency converter.
230	cable rupture pressure sensor B2	Pressure sensor has no valid signal values	Defective signal cable Defective pressure sensor

Code	Designation Reaction/Consequences	Cause	Remedy
			Check wiring
231	excess pressure storage	Pressure sensor signal value is too high	Defective signal cable Defective pressure sensor Check pressure sensor wiring
232	Malfunction Feed fan	Fan input is on	Attach K1 relay contacts with adhesive Broken wire, wiring fault Check the wiring.
240	Overload conveyor belt Q21	Motor protection switch	Switch on motor protection switch
		Motor protection switch	Set the rated current correctly (electric circuit diagram)
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
		Current consumption	Check current
		Motor protection switch	Check motor protection switch Replace motor protection switch
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
241	Overtemperature conveyor belt M21	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check motor. (Bearing, coil, shaft.)

Code	Designation Reaction/Consequences	Cause	Remedy
		Mechanical problems	Check the rotating parts for ease of motion
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
242	Overtemperature, converter U21	Frequency converter	Check installation of heat sink; also check it for dirt accumulation Check functioning of cooling fan for frequency converter
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
		Temperature of the electrical control cabinet is too high	Lower ambient temperature.
243	Overvoltage, converter U21	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
244	Undervoltage, converter U21	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
245	Overcurrent, converter U21	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
246	Overload, converter U21	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.)

Code	Designation Reaction/Consequences	Cause	Remedy
			Check current consumption
247	Communication, converter U21	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
248	Replace frequency converterv	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
249	Fault, converter U21	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
250	Fault, converter U21	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
260	Overload spiked feed lattice Q22	Motor protection switch	Switch on motor protection switch
		Motor protection switch	Set the rated current correctly (electric circuit diagram)
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
		Current consumption	Check current
		Motor protection switch	Check motor protection switch

Code	Designation Reaction/Consequences	Cause	Remedy
			Replace motor protection switch
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
261	Overtemp. spiked feed lattice M22	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
		Mechanical problems	Check the rotating parts for ease of motion
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
262	Overtemperature, converter U22	Frequency converter	Check installation of heat sink; also check it for dirt accumulation Check functioning of cooling fan for frequency converter
		Motor problems	Clean motorCheck motor. (Bearing, coil, shaft.) Check current consumption
		Temperature of the electrical control cabinet is too high	Lower ambient temperature.
263	Overvoltage, converter U22	Supply voltage incorrect	Check supply voltage

Code	Designation Reaction/Consequences	Cause	Remedy
		Frequency converter is defective	Replace frequency converter
264	Undervoltage, converter U22	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
265	Overcurrent, converter U22	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
266	Overload, converter U22	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
267	Communication, converter U22	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
268	Malfunction, converter U22	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
269	Fault, converter U22	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
270	Fault, converter U22	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter

Code	Designation Reaction/Consequences	Cause	Remedy
271	automatic dechoking failed	Machine still “overburdened” after 2 rectification attempts	Blockage due to material Check motor and drives
280	Overload opening roller Q23	Motor protection switch	Switch on motor protection switch
		Motor protection switch	Set the rated current correctly (electric circuit diagram)
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
		Current consumption	Check current
		Motor protection switch	Check motor protection switch Replace motor protection switch
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
281	Overtemperature, opening roller M23	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
		Mechanical problems	Check the rotating parts for ease of motion
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor

Code	Designation Reaction/Consequences	Cause	Remedy
		Supply voltage incorrect	Check supply voltage
282	Overtemperature, converter U23	Frequency converter	Check installation of heat sink; also check it for dirt accumulation Check functioning of cooling fan for frequency converter
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
		Temperature of the electrical control cabinet is too high	Lower ambient temperature.
283	Overvoltage, converter U23	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
284	Undervoltage, converter U23	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
285	Overcurrent, converter U23	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
286	Overload, converter U23	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
287	Communication, converter U23	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram

Code	Designation Reaction/Consequences	Cause	Remedy
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
288	Malfunction, converter U23	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
289	Fault, converter U23	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
290	Fault, converter U23	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
291	Overload take-off roller Q24	Motor protection switch	Switch on motor protection switch
		Motor protection switch	Set the rated current correctly (electric circuit diagram)
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
		Current consumption	Check current
		Motor protection switch	Check motor protection switch Replace motor protection switch
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.)

Code	Designation Reaction/Consequences	Cause	Remedy
			Check current consumption
300	Hardware fault CAN-module A30	Fault	Switch the main switch off and then on again
		DIP switches of CAN bus are incorrectly set	Set SW0 and SW1 DIP switches according to the electric circuit diagram
		CAN bus, no communication	Check CAN bus wiring.
		24 V supply voltage unit is faulty	Check wiring
		A 30 module is defective	Replace A 30 module
301	Initialization, converter U31	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		CAN bus, no communication	Check CAN bus wiring.
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
302	Converter - type U31	Fault	Switch the main switch off and then on again
		Incorrect type of frequency converter	Use a Rieter frequency converter.
303	Initialization, converter U32	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		CAN bus, no communication	CAN bus, no communication
		Frequency converter fault has been detected	Check connections for frequency converter

Code	Designation Reaction/Consequences	Cause	Remedy
			Replace frequency converter
304	Converter - type U32	Fault	Switch the main switch off and then on again
		Incorrect type of frequency converter	Use a Rieter frequency converter.
305	Initialization, converter U37	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		CAN bus, no communication	Check CAN bus wiring.
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
306	Converter - type U37	Fault	Switch the main switch off and then on again
		Incorrect type of frequency converter	Use a Rieter frequency converter.
310	Fill level too low B35	Material supply is too low	Adjust material supply (preceding machine)
		Production is too high	Reduce machine or line production
		Light barrier is defective	Check the functioning of the light barrier and replace, if necessary
311	Filling B34/B35	The top light barrier is permanently covered, the bottom light barrier is not covered	Clean the light barrier Remove fibre accumulations from the light barrier.
		Light barrier is defective	Check the functioning of the light barrier and replace, if necessary.
312	Waste disposal B33	Interval for waste suction is too long	Check waste transport

Code	Designation Reaction/Consequences	Cause	Remedy
313	Flap position B37/B38	Bypass flap is not in the correct position	Check flap position Check limit switches. Check limit switches and their wiring.
320	Overload, feed rollers Q31	Motor protection switch	Switch on motor protection switch
		Motor protection switch	Set the rated current correctly (electric circuit diagram)
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
		Current consumption	Check current
		Motor protection switch	Check motor protection switch Replace motor protection switch
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
321	Overtemperature, feed rollers M31	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
		Mechanical problems	Check the rotating parts for ease of motion

Code	Designation Reaction/Consequences	Cause	Remedy
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
322	Overtemperature, converter U31	Frequency converter	Check installation of heat sink; also check it for dirt accumulation Check functioning of cooling fan for frequency converter
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
		Temperature of the electrical control cabinet is too high	Lower ambient temperature.
323	Overvoltage, converter U31	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
324	Under voltage, converter U31	Supply voltage incorrect	Check supply voltage
		Frequency converter is= defective	Replace frequency converter
325	Overcurrent, converter U31	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
326	Overload, converter U31	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption

Code	Designation Reaction/Consequences	Cause	Remedy
327	Communication, converter U31	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
328	Malfunction, converter U31	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
329	Fault, converter U31	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
330	Fault, converter U31	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
331	Speed feed rollers too low	Material wound around roller	Remove wound material from roller and clean the intermediate spaces
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
340	Overload, opening roller Q32	Motor protection switch	Switch on motor protection switch
		Motor protection switch	Set the rated current correctly (electric circuit diagram)

Code	Designation Reaction/Consequences	Cause	Remedy
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
		Current consumption	Check current
		Motor protection switch	Check motor protection switch Replace motor protection switch
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
341	Overtemperature, opening roller M32	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
		Mechanical problems	Check the rotating parts for ease of motion
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
342	Overtemperature, converter U32	Frequency converter	Check installation of heat sink; also check it for dirt accumulation

Code	Designation Reaction/Consequences	Cause	Remedy
			Check functioning of cooling fan for frequenc converter
		Motor problems	Clean motorCheck motor. (Bearing, coil, shaft.) Check current consumption
		Temperature of the electrical control cabinet is too high	Lower ambient temperature.
343	Overvoltage, converter U32	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
344	Under voltage, converter U32	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
345	Overcurrent, converter U32	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
346	Overload, converter U32	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
347	Communication, converter U32	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
348	Malfunction, converter U32	Frequency converter fault has been detected	Check connections for frequency converter

Code	Designation Reaction/Consequences	Cause	Remedy
			Replace frequency converter
349	Fault, converter U32	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
350	Fault, converter U32	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
351	Speed opening roller too low	Delivery section is blocked	Clear out material Correctly set the air volume rate Check transport fan Check motor and drives
		Material wound around roller	Remove wound material from roller and clean the intermediate spaces
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
352	Speed monitor B32	Proximity switch is not functioning correctly.	Check setting and functioning of the proximity switch. Check the wiring. Replace proximity switch
360	Overload, compression rollers Q37	Motor protection switch	Switch on motor protection switch
		Motor protection switch	Set the rated current correctly (electric circuit diagram)

Code	Designation Reaction/Consequences	Cause	Remedy
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
		Current consumption	Check current
		Motor protection switch	Check motor protection switch Replace motor protection switch
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
361	Overtemperature comp. rollers M37	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
		Mechanical problems	Check the rotating parts for ease of motion
		No signal	Check wiring and connections from motor protection switch, frequency converter and motor
		Supply voltage incorrect	Check supply voltage
362	Overtemperature, converter U37	Frequency converter	Check installation of heat sink; also check it for dirt accumulation Check functioning of cooling fan for frequency converter
		Motor problems	Clean motor

Code	Designation Reaction/Consequences	Cause	Remedy
			Check motor. (Bearing, coil, shaft.) Check current consumption
		Temperature of the electrical control cabinet is too high	Lower ambient temperature
363	Overvoltage, converter U37	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
364	Undervoltage, converter U37	Supply voltage incorrect	Check supply voltage
		Frequency converter is defective	Replace frequency converter
365	Overcurrent, converter U37	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
366	Overload, converter U37	Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
367	Communication, converter U37	Fault	Switch the main switch off and then on again
		DIP switches for frequency converter are incorrectly set	Set SW1, SW2 and SW3 DIP switches according to the electrical circuit diagram
		Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
368	Malfunction, converter U37	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter

Code	Designation Reaction/Consequences	Cause	Remedy
369	Fault, converter U37	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
370	Fault, converter U37	Frequency converter fault has been detected	Check connections for frequency converter Replace frequency converter
371	Speed compression rollers too low	Material wound around roller	Remove wound material from roller and clean the intermediate spaces
		Mechanical problems	Check the rotating parts for ease of motion
		Motor problems	Clean motor Check motor. (Bearing, coil, shaft.) Check current consumption
380	Malfunction Foreign matter module	Foreign-matter module fault	See operating manual for foreign-matter module
381	Signalfault Foreign matter module	No signal	Check wiring and connections
		Foreign-matter module fault	See operating manual for foreign-matter module
382	Overload Q2	No signal	Check wiring and connections
		Motor protection switch	Switch on motor protection switch
		Motor protection switch	Check motor protection switch Replace motor protection switch
		Motor protection switch	Set the rated current correctly (electric circuit diagram)
		Supply voltage incorrect	Check supply voltage
		Current consumption	Check current

7.8.2 Warning

Code	Designation Reaction/consequences	Cause	Remedy
550	Opening roller position not reached.	The electric cylinder has not reached the target position within the prescribed time.	Check wiring for electric cylinder. Check the mechanics for the grating setting.
552	Filling minimum	Material supply is too low	Adjust material supply (preceding machine).
		Production is too high	Reduce machine or line production.
		Light barrier is defective	Check the functioning of the light barrier and replace, if necessary.
553	Monitoring delivery suction	No vacuum	Check fan.
		Pressure switch	Correctly set the pressure switch. Check plastic pipe to pressure switch.
		Delivery section is blocked	Clear out material. Correctly set the air volume rate. Check transport fan. Check motor and drives.
560	Minimal filling, R/S module	Material supply is too low	Adjust material supply (preceding machine).
		Production is too high	Reduce machine or line production.
		Light barrier is defective	Check the functioning of the light barrier and replace, if necessary.
562	Speed monitor opening roller	Delivery section is blocked	Clear out material. Correctly set the air volume rate. Check transport fan. Check motor and drives.
		Material wound around roller	Remove wound material from roller and clean the intermediate spaces.
		Mechanical problems	Check the rotating parts for ease of motion.
		Motor problems	Clean motor.

Code	Designation Reaction/consequences	Cause	Remedy
			Check motor. (Bearing, coil, shaft.). Check current consumption.
564	M33 Grid position not reached	The electric cylinder has not reached the target position within the prescribed time.	Check wiring for electric cylinder. Check the mechanics for the grating setting.
565	M34 Grid position not reached	The electric cylinder has not reached the target position within the prescribed time.	Check wiring for electric cylinder. Check the mechanics for the grating setting.
566	Waste disposal	Interval for waste suction is too long	Check waste transport.
567	Reaction Overload of opening roller M32	Current consumption of the opening roller motor exceeds max. value	Increase speed of opening roller. Reduce the chute depth. Reduce production.
570	Foreign matter module warning	Warning display from foreign-matter module	Display with signal lamp. See operating manual for foreign-matter module.
571	Foreign matter module switched OFF	No “Power ON” signal from foreign-matter module.	Switch ON foreign-matter module.

7.8.3 Maintenance Warning

Code	Designation Reaction/Consequences	Cause	Remedy
600	Data system, no ethernet module A18	A18 Ethernet module is defective	Replace A18 Ethernet module.
		A18 Ethernet module is missing	Install A18 Ethernet module.
649	Replace battery	Battery test mechanism has responded. Energy of battery is too low or battery is missing.	Replace battery.

7.9 Error Not Displayed

7.9.1 CAN IO Module CX408

7.9.1.1 LED "Status" on Module CX408 Does Not Light up Green

Cause	Remedy
CAN I/O module may be faulty	Check module and possibly replace. *Checking CAN I/O module CX408* ▸ *179*

8 Maintenance

This chapter contains the information about the maintenance of the machine.

8.1 Cleaning Table by Cycle

Target group	Cleaning cycle	Additional information	
Maintenance Personnel	Cleaning each 165 h	8.12.1	Cleaning the Collecting Duct
		8.14.1	Inspect and Clean Storage Area and Rollers
	Cleaning each 2 000 h	8.12.2	Clean the Separating Vanes
		8.12.3	Cleaning the Housing of the Frequency Converter

8.2 Lubrication Table by Cycle

Target group	Lubrication cycle	Additional information	
Maintenance Personnel	Lubrication each 2 000 h	8.13.1	Lubricating Bearings and Chains
		8.13.2	Lubricating Chains (R/S Module)
	Lubrication each 32 000 h	8.13.3	Changing Lubricant for Gear Motors
		8.13.4	Change of Lubricant in Gear Motors (R/S Module)

8.3 Inspection Table by Cycle

Target group	Inspection cycle	Additional information	
Maintenance Personnel	Inspection each 165 h	8.14.1	Inspect and Clean Storage Area and Rollers

8.4 Maintenance Personnel

Only the Rieter-approved personnel are permitted to do the maintenance work at the machine.

8.5 General Information

Make sure that only approved personnel do the maintenance works.

The maintenance works contain cleaning tasks, lubrication tasks, and inspection tasks.

The intervals shown below are guide values.

Interval Specification	Duration in 3-shift Operation
165 operating hours	1 week

Interval Specification	Duration in 3-shift Operation
330 operating hours	2 weeks
660 operating hours	4 weeks
2 000 operating hours	3 months
4 000 operating hours	6 months
8 000 operating hours	1 year

8.6 Maintenance Overview

This section contains the information about the necessary tools and the necessary lubrication materials that are used during the maintenance work.

8.7 Maintenance Schedule

This section has the information about the maintenance work that is necessary to do in the different maintenance intervals.

8.8 Maintenance Tasks

The standard conditions that follow have effects on the schedule of cleaning:

- Air quality
- Humidity
- Temperature

You can decrease the time interval if your conditions are not standard.

8.9 Overview of Special Tools

Grease Gun

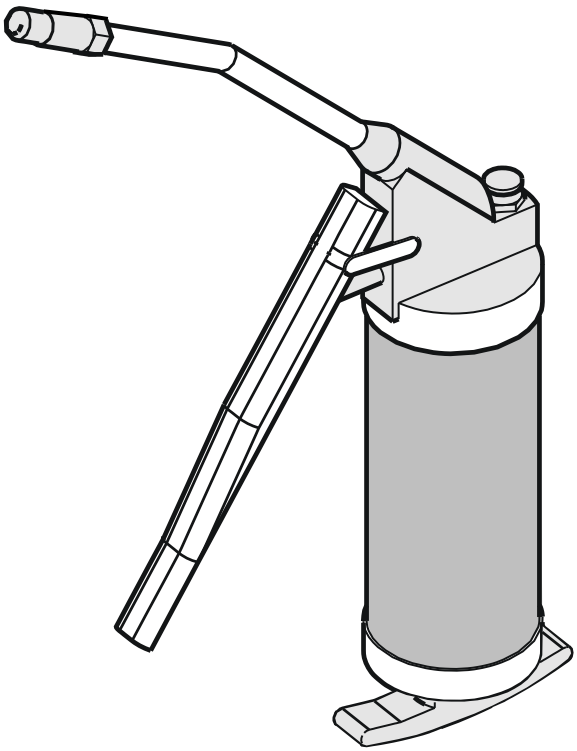

Figure 223: Overview of special tools

Lubrication of lubricating nipple

Capacity per pump stroke	0.333 cm³

The capacity without counter-pressure is 0.5 cm³.

8.10 Explanations for Maintenance and Intervals

Maintenance Necessity

Periodic maintenance is a prerequisite for long life time.

Periodic maintenance avoids unnecessary down time.

Maintenance Targets

To keep equipment in good conditions with a minimum of problems.

To avoid interruptions by preventing measures.

Pay Backs of Organized Maintenance

Maintenance may be scheduled and labor requirements anticipated.

Not Sufficient Maintenance or Poorly Organized Maintenance:

Problems will arise at any time, avoidable loss of production will be encountered.

Correct Cleaning Procedures

Cleaning must be done in a timely manner and at the right place.

Correct Lubrication Procedures

Lubrication procedures must be done in a timely manner with proper lubricant at the right place and in the right amount.

To be able to lubricate properly it is necessary to have good equipment and exact operational scheduling.

Preparations require that machines and equipment are in appropriate conditions.

Personnel must be trained and familiar with the task on hand.

Adapt Maintenance Schedules to Operating Conditions

Maintenance schedules depend upon material, trash content, air condition, and operating conditions.

The recommended maintenance schedules are mere proposals to be changed according to local conditions.

Intervals

There are intervals which are valid either only once or at cyclical intervals.

The unique ones are only to be used after the first installation and start-up. This can apply to the whole machine or to an individual element. For example, should a newly fitted belt needed to be re-stretched after a certain running time.

Cyclical tasks must be performed repeatedly.

For example, after a running time of 660 hours, the 165, the 330 and the 660 maintenance work must be carried out.

In 3 shift operation, the following intervals correspond to the quoted times.

165 operating hours = 1 week

330 operating hours = 2 weeks

660 operating hours = 4 weeks

2000 operating hours = 3 months

4000 operating hours = 6 months

8000 operating hours = 12 months

Maintenance Planning

The maintenance schedule serves as overview for this.

The maintenance schedule is given in tabular form and lists the intervals at which the different maintenance work is required.

The maintenance plan permits a detailed customer-specific maintenance schedule to be drawn up.

The work description is referenced for each piece of maintenance work.

For service specialists who carry this work out on a routine basis, this need to refer to a work description is no longer necessary.

The tabulated column "Values" gives the service specialist details of the lubrication points.

The tabulated column "Values" contains a summary of the most important data on the corresponding lubrication points.

1. Location designation of the lubrication points.
2. Number of lubrication points, for example the number of lubricating nipples = 8.
3. Lubricant information, e.g. EP2.
4. Lubricant type, e.g. "grease".
5. Lubricant quantity, e.g. 3 pump strokes per lubricating nipple.

8.11 Cleaning / Lubrication

Purpose of Cleaning

Regular maintenance and constant cleaning of the machine contribute towards trouble-free operation.

Use of Cleaning Agents

Natural residue from cotton, such as honeydew, is best cleaned off with a cleaning rag and hand-warm water.

Residue from lubricants and deposits from synthetic fiber material are best cleaned with a solvent that does not attack rubber and paint. e.g. use cleaning alcohol or water with a grease-dissolving general-purpose cleaner.

Use a high-powered industrial vacuum cleaner to remove dust and fly. The suction nozzle must be fitted with a plastic tip.

After cleaning, the least volatile cleaning agents such as kerosine, white spirit, must be blown out of the antifriction bearings, using clean compressed air and without rotating the bearing.

Caution

Unauthorised conversions or modifications are not allowed, as there is then no guarantee that the machine will function correctly.

8.11.1 Safety Precautions during Cleaning Work

Safety Precautions

Switch off main switch Q10 and secure with padlock.

All jobs requiring these security measures are indicated by an appropriate symbol on the particular page.

Inflammable Fuel

If inflammable cleaning agents are used in the spinning mill, their flash point should be above 55°C.

8.11.2 Safety Precautions during Lubrication

Remove any drops of oil and other lubricants on the floor immediately to prevent all risk of slipping and falling.

8.12 Cleaning Tasks

The following tasks are executed by operating personnel during shift operation.

8.12.1 Cleaning the Collecting Duct

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

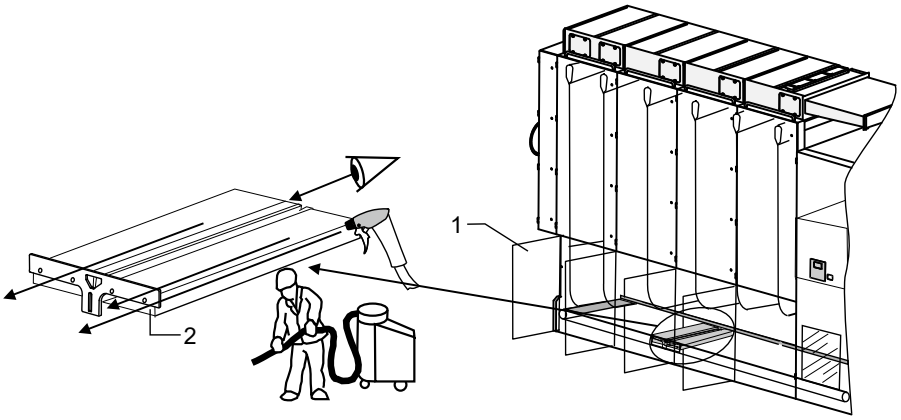

Figure 224: Cleaning the collecting duct

1. Open the doors 1 on both sides.
2. Blow out material from the collecting duct 2 using compressed air.

8.12.2 Clean the Separating Vanes

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Orientation

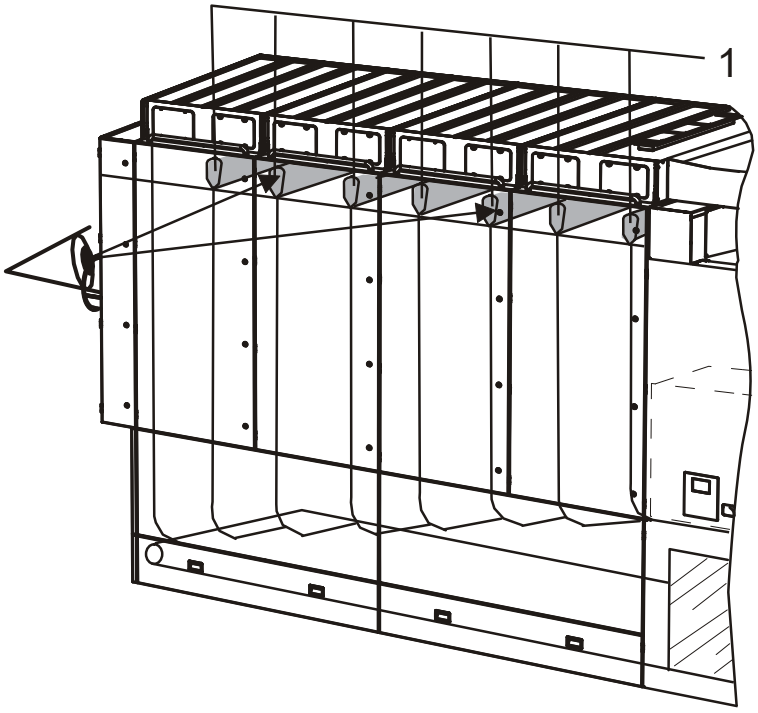

Figure 225: Cleaning the separating vanes

1. Check the separating vanes for fiber accumulation (fiber tails) and clean, if required.
2. Clean any fiber finish or honeydew residues with a wet cloth.

8.12.3 Cleaning the Housing of the Frequency Converter

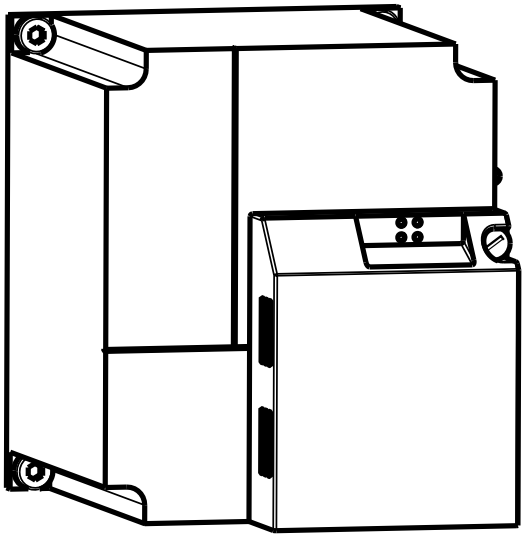

Figure 226: Frequency converter

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Clean the entire surface of the housing with a vacuum cleaner.

8.13 Lubrication Tasks

This section contains the information about the lubrication of the machine.

CAUTION

Incorrect storage and incorrect handling of the lubricants

Irritation or burns to your skin, eyes, or respiratory tract

Risk of slipping when spilled

- ▶ Read the safety data sheet.
- ▶ Use safety gloves and safety goggles.
- ▶ Do **not** touch hot lubricants.
- ▶ Clean up after spillage.

8.13.1 Lubricating Bearings and Chains

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

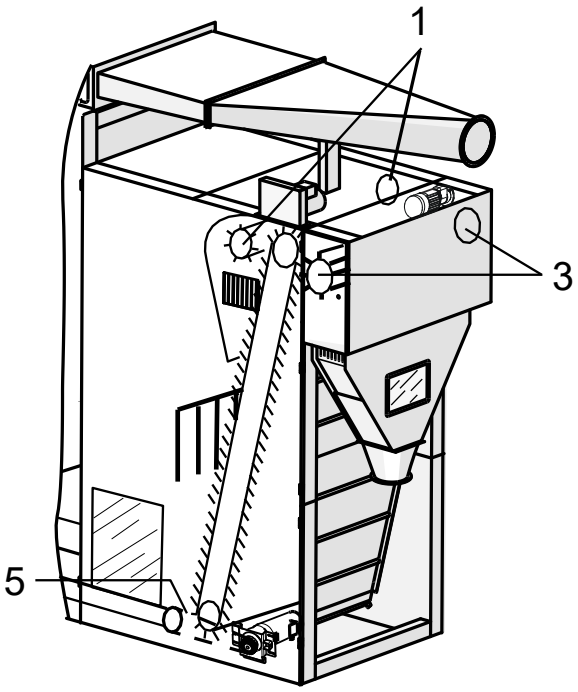

Figure 227: Lubricating bearings and chains

1	Castor jack on left	2	Bar on left

3 Extension for bar	4 Indication of min. insertion length for bar extension
5 Bar on right	6 Castor jack on right

– Lubricate nipple 1.

Medium: EP 2

Quantity:	3 pump strokes
Location number:	1
Place:	Opening roller

UNImix ▸ 224

Grease gun ▸ 211

– Lubricate nipple 3.

Medium: EP 2

Quantity:	3 pump strokes
Location number:	3
Place:	Take-off roller

UNImix ▸ 224

Grease gun ▸ 211

– Lubricate chain 5.

Medium: CC320

Quantity:	Lightly coat
Location number:	5
Place:	Conveyor belt chain

UNImix ▸ 224

– Lubricate chain 5.

Medium: S 21

Quantity:	Lightly spray
Location number:	5
Place:	Conveyor belt chain

UNImix ▸ 224

8.13.2 Lubricating Chains (R/S Module)

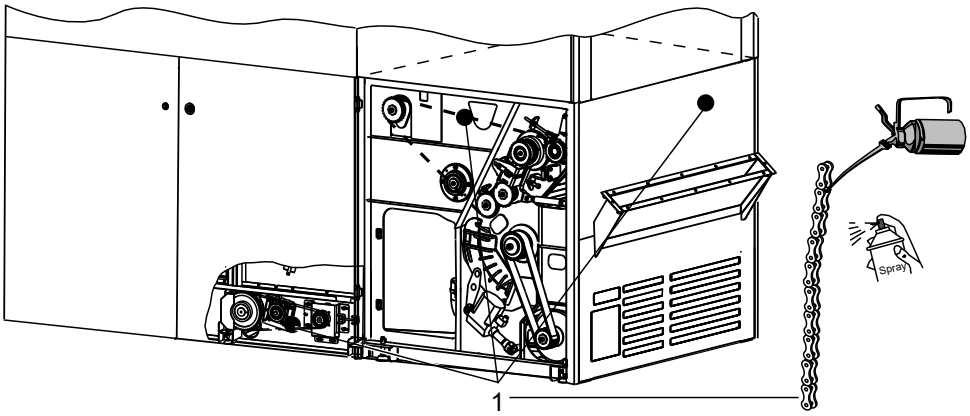

Figure 228: Lubricating chains (R/S module)

1. Lubricate the chains 1 with a chain spray.

Orientation Medium: S 21

Quantity:	Lightly spray
Location number:	1
Place:	Chains for drives

R/S module ▸ 224

1. Oil the chains 1.

Medium: CC320

Quantity:	Lightly spray
Location number:	1
Place:	Chains for drives

R/S module ▸ 224

8.13.3 Changing Lubricant for Gear Motors

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

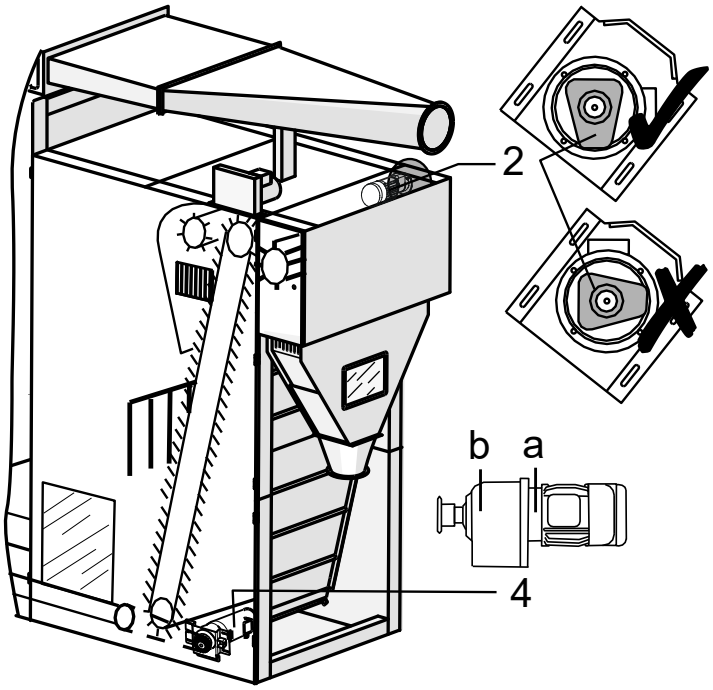

Figure 229: Changing lubricant for gear motors

Prerequisites Make sure that the criteria are obeyed:

✓ Do NOT mix different types of lubricant.

1. Remove contaminated lubricant by flushing out the gearboxes of the motors.
2. Spiked-lattice drive unit: Lubricate the gear motor 2.
3. Ensure that gear motor is installed in the correct position!

Orientation Medium: CC220

Quantity:	180 cm³
Location number:	2
Place:	Gear motor for spiked lattice

UNImix ▸ 224

1. Conveyor-belt drive unit: Fill the pre-stage gearbox a with lubricant.

Medium: S 26

Quantity:	175 g
Location number:	4
Place:	Gear motor for conveyor belt

UNImix ▸ 224

Conveyor-belt drive unit: Lubricate the main gearbox b.

Medium: S 26

Quantity:	600 g
Location number:	4
Place:	Gear motor for conveyor bel

UNImix ▸ 224

8.13.4 Change of Lubricant in Gear Motors (R/S Module)

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

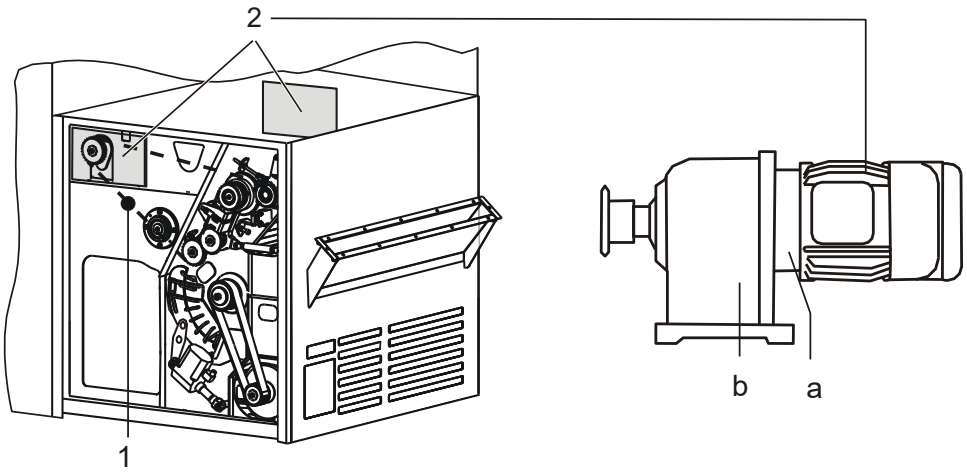

Figure 230: Change of lubricant in gear motors (R/S module)

Prerequisites Make sure that the criteria are obeyed:

✓ Do NOT mix different types of lubricants.

1. Rinse the soiled lubricant from the gearboxes of the motors 2.
2. Fill the pre-stage gearboxes a with lubricant.

Orientation Medium: S 26

Quantity:	0.175 L
Location number:	2
Place:	Pre-stage gearbox

R/S module ▸ 224

1. Fill the main gearboxes b with lubricant.

Medium: S 26

Quantity:	0.61 L
Location number:	2
Place:	Main gearbox

R/S module ▸ 224

8.14 Inspection Tasks

This section contains the information about the inspection tasks of the machine.

8.14.1 Inspect and Clean Storage Area and Rollers

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

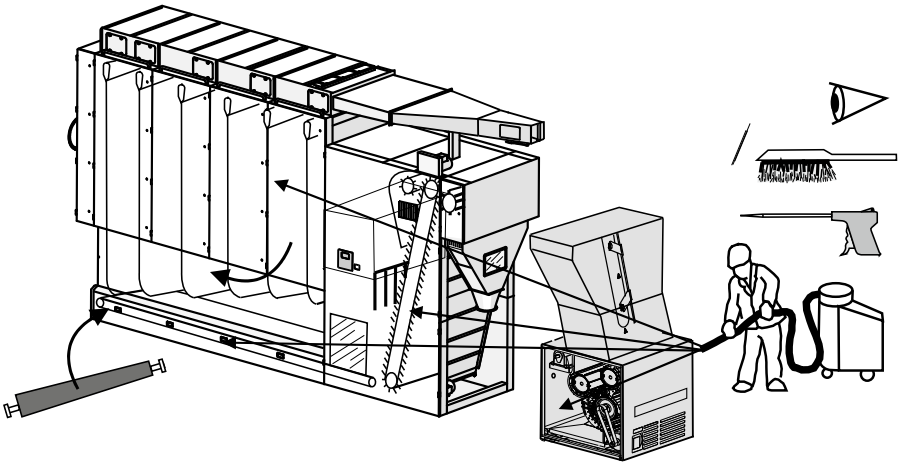

Figure 231: Inspect and clean storage area and rollers

1. Open all doors.
2. Clean exhaust air chambers.
3. Remove and clean the cleaning rod.
4. Clean the inside of the conveyor belt.
5. Clean the inside of the spiked lattice.
6. Clean the module, chain side and belt side.

8.15 Lubricant Manufacturer

Lubricant	Manufacturer	Name
EP 2	AGIP	GR MU EP 2
	AVIA	AVIALITH 2 EP
	BP	ENERGREASE LS EP-2
	CASTROL	SPHEEROL EPL 2
	ExxonMOBIL	MOBILUX EP2
	KLÜBER	MICROLUBE GBU-Y 131
	LAGERMEISTER	LAGERMEISTER TS
	OPTIMOL	LONGTIME PD2

Lubricant	Manufacturer	Name
	PETRO CANADA	PRECISION GENERAL PURPOSE EP 2
	SHELL	Gadus S2 V220 2
	TEXACO	MULTIFAK EP2
	VALVOLINE	MULTIPLEX SG - 2
CC320	AGIP	BLASIA 320
	AVIA	AVIA GEAR RSX 320
	BP	ENERGOL GR.XP 320
	CASTROL	ALPHA SP 320
	ExxonMOBIL	MOBIGEAR 600 XP 320
	KLÜBER	KLÜBEROIL GEM 1 -320N
	OPTIMOL	OPTIGEAR BM 320
	PETRO CANADA	ENDURATEX EP 320
	SHELL	OMALA S2 G 320
	TEXACO	MEROPA 320
	VALVOLINE	EPG 320
S 21	CASTROL	VISCOGEN KL 23
	INTERFLON	FOOD LUBE G 150 SPRAY
	KLÜBER	HOTEMP 2000 SPRAY
	LUBCON	TURMOFLUID 450 TURMOLYB MDC SPRAY
	OPTIMOL	VISCOGEN KL 23
	PETRO CANADA	PURITY FG SPRAY
	VALVOLINE	WHITE SYNTHETIC CHAINLUBE
CC220	AGIP	BLASIA 220
	AVIA	AVIA GEAR RSX 220
	BP	ENERGOL GR-XP 220
	CASTROL	ALPHA SP 220
	ExxonMOBIL	MOBILGEAR 600 XP 220
	KLÜBER	KLÜBEROIL GEM 1 -220N
	OPTIMOL	OPTIGEAR BM 220
	PETRO CANADA	ENDURATEX EP 220
	SHELL	OMALA S2 G 220
	TEXACO	MEROPA 220
	VALVOLINE	EPG 220
S 26	AVIA	AVIALITH 00/000 EP
	BP	ENERGREASE LS EP 00

Lubricant	Manufacturer	Name
	CASTROL	LONGTIME PD 00
	ExxonMOBIL	MOBILUX EP 004
	KLÜBER	MICROLUBE GB 00
	PETRO CANADA	PRECISION XL EP 00
	SHELL	Gadus S2 V220 00
	TEXACO	TEXCLAD AI EP 00
	VALVOLINE	SEMI FLUID GREASE 00

8.16 Standard Lubricant

Code	Designation	Viscosity	DIN	ISO	Description
EP 2	Grease	Viscosity of the basic oil 100-250	KP2G-20 (51825)		EP-Lubricant, lithium-base or equivalent penetration; 260 -310, NLGI-class 2. High load additives phosphor-sulphur-based or equivalent EP additives. Ageing-protection and anti-rust additives. Not aggressive to bronze.
CC320	EP oil, heavy	ISO viscosity mm²/s 40 °C 320	CLP 320 (51517/3)	CC320	Paraffin base oil, VI > 90. Little or no swelling of Orings or other synthetic rubber gaskets. Not aggressive to bronze. Good load-bearing ability; FZGTest Load class 12. Extreme pressure additives on basis of phosphorus sulphur or equivalent EP additives.
S 21	Chain spray				Synthetic lubricants specifically used for chain lubrication. Extremely pressure-absorbent substances, that are free of solid matter and silicone, form a highly-adhesive lubrication film
CC220	EP oil	ISO viscosity mm²/s 40 °C 220	CLP220 (51517/3)	CC220	Paraffin base oil, VI > 90. Little or no swelling of Orings or other synthetic rubber gaskets. Not aggressive to bronze. Good load-bearing ability; FZGTest Load class 12. Extreme pressure additives on basis of phosphorus sulphur or equivalent EP additives.
S 26	Low-viscosity gearbox grease	Penetration class 00			Low-viscosity grease with high-pressure additives.

8.17 Lubrication Points

UNImix

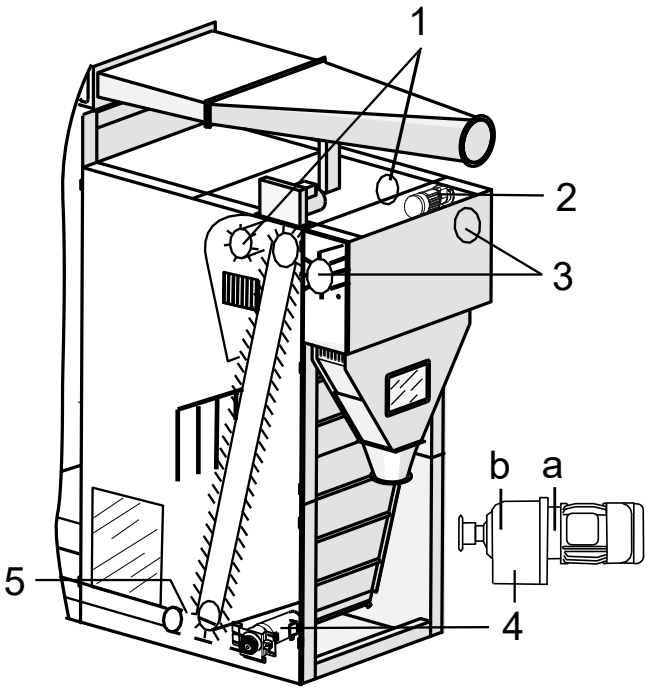

Figure 232: UNImix

Location number	Place	Number	Medium	Quantity	Special tools
1	Opening roller	2	EP 2	3 pump strokes	--
2	Gear motor for spiked lattice	1	CC220	180 cm³	--
3	Take-off roller	2	EP 2	3 pump strokes	--
4	Gear motor for conveyor belt	Pre-stage gearbox, “a”	S 26	175 g	--
4	Gear motor for conveyor belt	Main gearbox, “b”	S 26	600 g	--
5	Conveyor belt chain	1	CC320	Lightly coat	--
5	Conveyor belt chain	1	S 21	Lightly spray	--

R/S Module

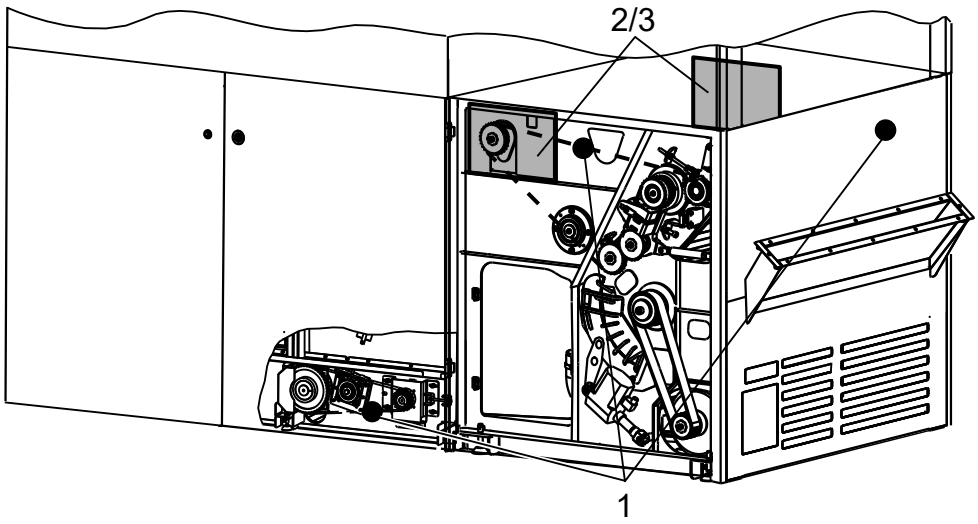

Figure 233: R/S module

Location number	Place	Number	Medium	Quantity	Special tools
1	Chains for drives	--	CC320	Lightly coat	--
1	Chains for drives	--	S 21	Lightly spray	--
2	Pre-stage gearbox	a	S 26	0.175	--
2	Main gearbox	b	S 26	0.6 l	--

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9 Repair

This chapter contains the information about how to repair the defective machine parts.

9.1 General Information

Make sure that only approved personnel do the repair work.

During the repair work, the approved personnel replace machine parts that do not work correctly. The repair work makes sure that the machine is malfunction-free in the production.

9.2 Repair Work

This section has the information about the repair work of the machine.

9.3 Replacing the Operating Unit (Including the Control Unit)

9.3.1 Removal

1. Remove the operating unit.
2. Remove the keyboard strip.

9.3.2 Installation, Adding Equipment

1. Insert the keyboard strip into the operating unit that is to be installed.

Orientation Change keyboard strip

1. Install the operating unit and make connections according to the diagrams and electrics documentation.

Inserting the modules and plugs on the operator panel ▸ 284

1. Load software on to the control unit.

Software exchange between memory card and control system ▸ 171

9.3.3 Configuration

Set the Terminating Resistor

Setting or wiring in the terminating resistors for the CAN-Bus ▸ 177.

Setting the Node Address

Set the CAN node address of the CAN I/O module CX408 ▸ 179

Setting the IP Address for the SPIDERweb Option

Setting the IP address ▸ 174

9.3.4 Display Brightness

Make setting.

Adjusting the contrast on the display unit ▸ 285

9.4 Replace the Frequency Converter

9.4.1 Equipment

The device must be equipped with the relevant components.

Identifying the frequency converter ▸ 272

Equipping the frequency converter ▸ 278

Adapting to the cooling system ▸ 282

9.4.2 Configuration

The components must be configured appropriately.

Configuring the frequency converter ▸ 279

Setting the T1000V frequency converter ▸ 282

9.5 UNImix

9.5.1 Removing the Windows

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

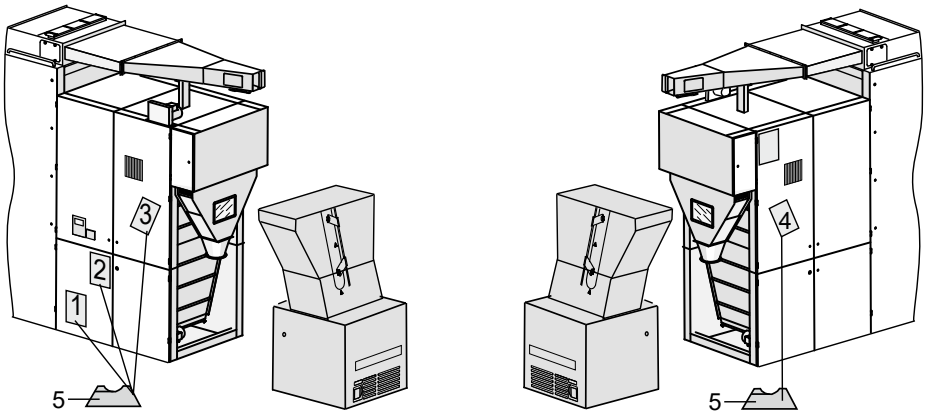

Figure 234: Removing the windows

Prerequisites Make sure that the criteria are obeyed:

✓ Do NOT use any other types of screw. Otherwise, the required level of safety is no longer guaranteed.

1. In an emergency, the safety screws 5 for the windows (1....4) can be loosened using a chisel.

   ⇨ Once loosened, the safety screws are no longer usable.

2. Replace damaged safety screws with screws of the same type.

9.5.2 Setting Suction Values

Orientation Settings

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

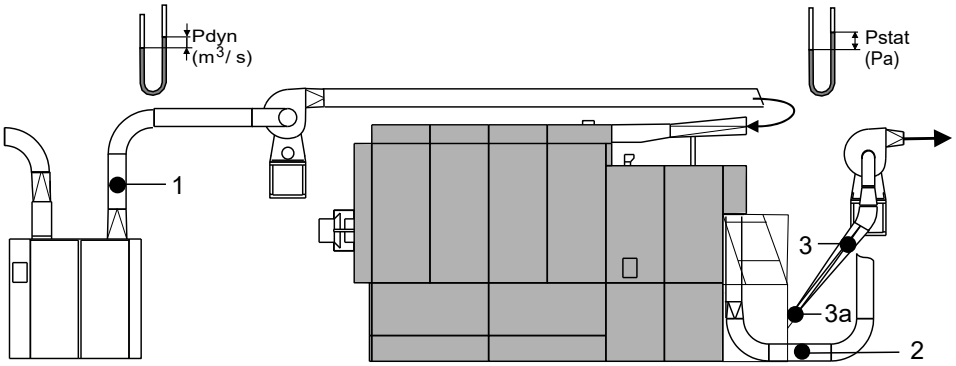

Figure 235: Setting suction values

Measure the air flow rate at a straight pipe section.

Ideally, each measuring point should be at a distance of 10 times the pipe diameter ahead of or beyond a bend, funnel, transition section, etc. If this is not possible, select measuring points as indicated in the diagram.

Air Properties	
Extraction at the upstream machine Air flow rate / static vacuum	Refer operation manual.
Machine version without the R/S module: The Measuring point at material exit Air flow rate	0.6 to 0.9 m³/s
Machine version without the R/S module. The Measuring point at material exit	Static vacuum: - 200 Pa
Machine version with the R/S module The Measuring point at material exit	Air volume: 0.5 to 0.7 m³/s
Machine version with the R/S module	Static vacuum: - 200 Pa

Air Properties	
The Measuring point at material exit	
Machine version with the R/S module The Measuring point at material exit Static vacuum	Static vacuum dependent on the measuring point

9.6 Lower Blend Module

9.6.1 Conveyor Belt

9.6.1.1 Tools

Extension

Removal of feed belt rollers.

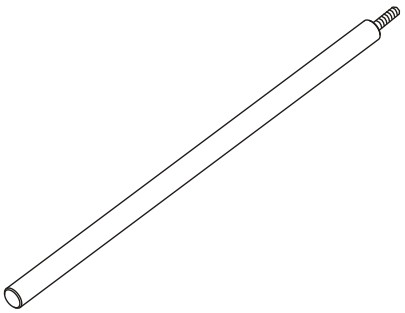

Figure 236: Tools

9.6.1.2 Removing the Conveyor Belt

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Preparatory Work

Orientation Prior to dismantling, the material that is still in the machine must be removed.

Remove Parts

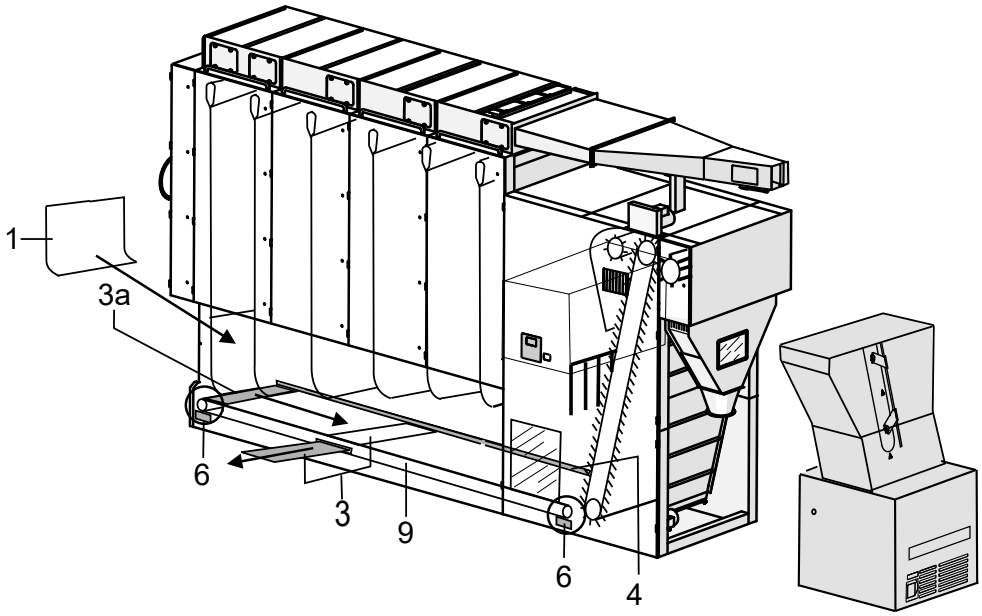

Figure 237: Removing the conveyor belt_1

1. Remove the rearmost bottom partition wall 1.
2. Slacken the conveyor belt 9 at the rear bearing points 6.
3. Remove all guide plates 3 from the machine from the side.

The slide plates 3a can be moved inside the machine. Consequently, several can be removed from the same place.

1. Remove the cover brackets 4 from both sides.

Removing the Conveyor Belt Rollers

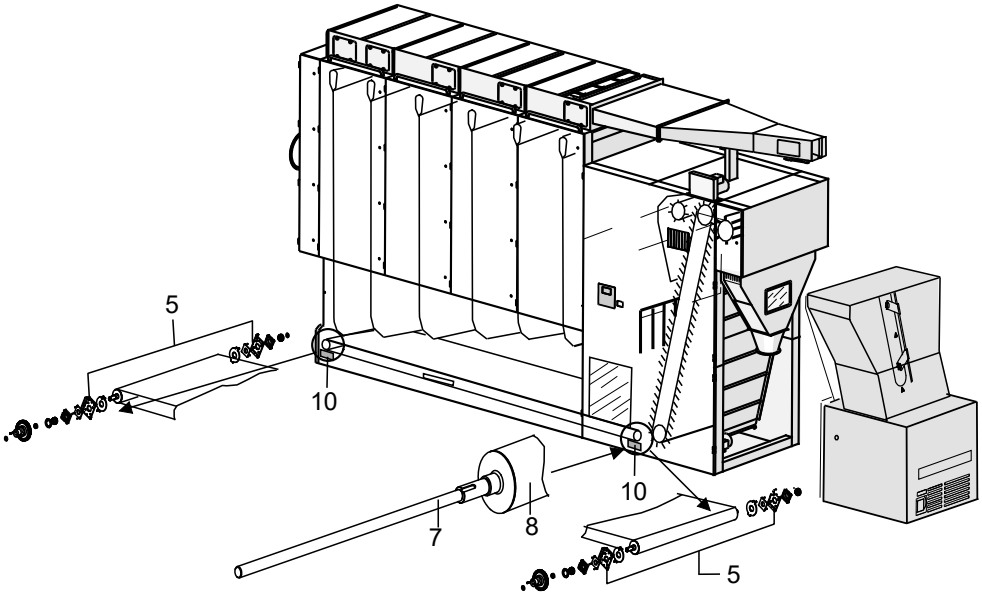

Figure 238: Removing the conveyor belt_2

1. Prior to removing the bearing components 5, place wooden supports 10 beneath the conveyor belt rollers 8.
2. Remove the parts of bearings 5.

Store the bearing points 5 separately. The bearings on the left side of the machine are fixed bearings and must not be mounted on the right side of the machine.

1. Fit the supplied extensions 7 into the conveyor belt roller 8 and lift the conveyor belt roller out of the machine.

Extension ▸ 230

See also

Lower Blend Module [▸ 230]

9.6.1.3 Installing the Conveyor Belt

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Preparing the Conveyor Belt

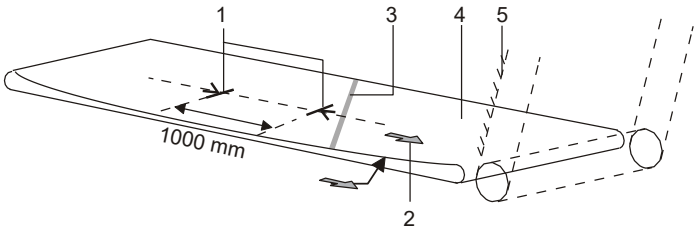

Figure 239: Preparing the conveyor belt

1. Roll out the conveyor belt 4 and position it in the correct running direction.

Orientation The feed belt is marked with an arrow 2 on its inner side. If the feed belt is motion, the arrow points towards the spiked lattice 5.

1. Use the markings 1 affixed in the centre of the conveyor belt to tighten the belt.

The markings 1 are located in the area of the belt splice 3.

Adjusting Distance between Conveyor Belt and Spiked Lattice

Fitting the Conveyor Belt and Slide Plates and Mounting the Conveyor Belt Rollers

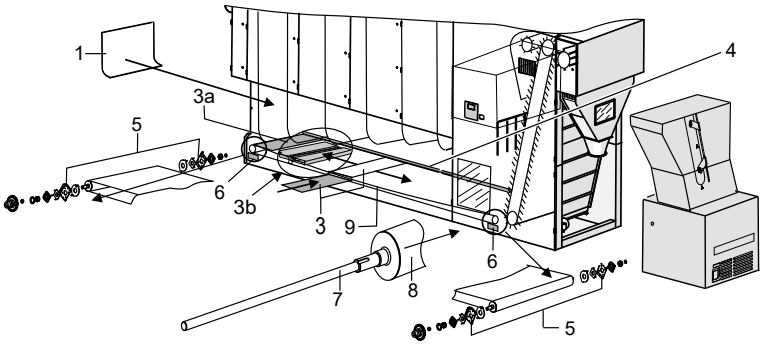

Figure 240: Fitting the conveyor belt and slide plates and mounting the conveyor belt roller

1. Place the wooden supports 6 so that these are positioned beneath the conveyor belt rollers.
2. Fit the conveyor belt 9 in the machine.

Pay attention to the running direction.

1. Install the cleaning unit 3b at the delivery section.
2. Firstly insert the conveyor belt roller 8 at the drive section of the conveyor belt, with the help of the extensions 7.

Tools ▸ 230

1. Mount the bearings 5 on both sides.

The fixed bearing has to be mounted on the left side of the machine.

1. Fit the narrower, rearmost slide plate 3a (dark green in colour).
2. Laterally insert all slide plates 3 in the machine.

The slide plates can be moved inside the machine. Consequently, several can be inserted at the same place.

1. Mount the rear conveyor belt roller.
2. Mount the bearings 5 on both sides.

The fixed bearing has to be mounted on the left side of the machine.

Standard Setting for Distance between Conveyor Belt and Spiked Lattice

1. Check or adjust the standard setting.

Adjusting Distance between Conveyor Belt and Spiked Lattice

Mounting Cover Brackets and Rear Wall

1. Fit the cover brackets 4 and set their positions, so that they are 2.00 mm from the conveyor belt 9.
2. Mount the rear wall 1.

Tightening the Conveyor Belt

1. Once all the work has been completed, tighten the conveyor belt 9 at the rear tensioning mechanism.

Tension Conveyor Belt ▸ 235

1. Check the running of the conveyor belt 9.

Following start-up, the running of the conveyor belt must be checked frequently, and corrected whenever necessary.

Aligning the Conveyor Belt

9.6.1.4 Setting the Cleaning Unit of the Feed/Conveyor Belt

Orientation Material transport in the storage area

Prerequisites Make sure that the criteria are obeyed:
✓ The main switch is set to the position OFF and the main switch is padlocked.

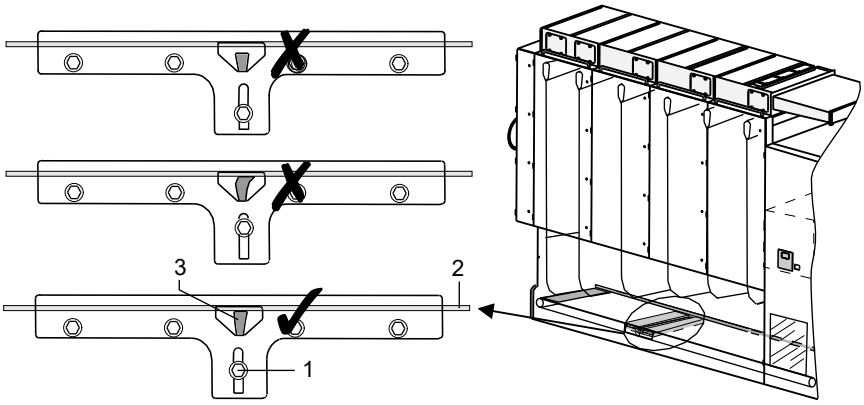

Figure 241: Setting the cleaning unit of the feed belt

1. Loosen the screws 1 slightly on both sides.
2. Press the cleaning brush 3 on both sides with slight pressure against the feed belt 2 and tighten the screws 1.

Too much pressure will damage the cleaning brush; without pressure, no cleaning is taking place.

9.6.1.5 Tension Conveyor Belt

Orientation Production is not Reached

Material Transport in the Storage Area

Bolts 5 are used to pre-tension the conveyor belt 6. Bolts 3 are used to make the final setting for the tension.

Tensioning the Conveyor Belt (Standard Setting)

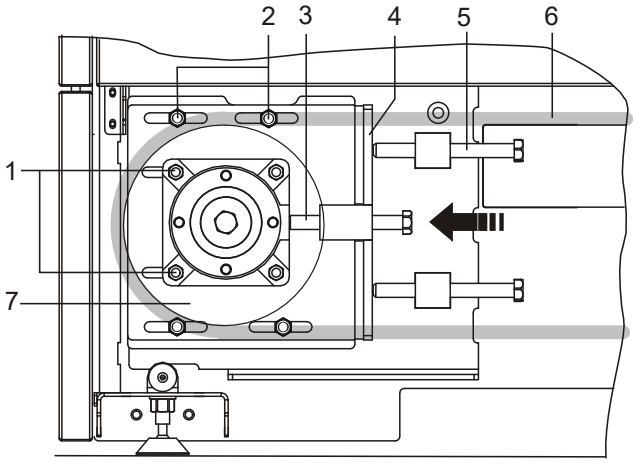

Figure 242: Tensioning the conveyor belt (standard setting)

1. Loosen the nuts 1 and turn back the screws. 3.
2. Push back the conveyor belt roller 7 as far as possible.

3. Loosen all nuts 2.
4. Use the adjusting bolts 5 to move and position the bearing plate 4 in parallel until the conveyor belt 6 is prestressed.
5. Tighten the nuts 2.

Correctly Tensioning the Conveyor Belt

1. Use the adjusting bolts 3 to push the conveyor belt roller 7 in parallel to the rear until the correct tension is obtained.

Feed belt tension	0.2 ... 0.6 %

1. Observe the correctly tensioned conveyor belt and align, if necessary.

9.6.1.6 Aligning the Conveyer Belt

Production is not reached

Material transport in the storage area

Once it is determined that the conveyor belt is offset in one direction, the conveyor belt has to be properly aligned in small steps. When doing this, however, the proper tension must not be exceeded.

The Conveyor Belt Runs to the Left.

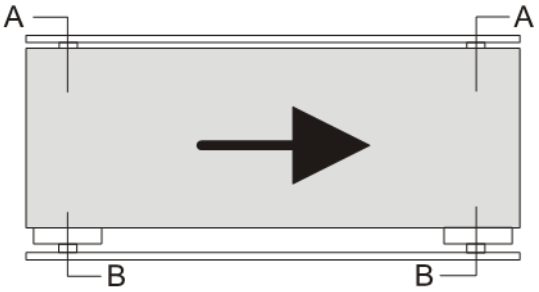

Figure 243: The feed belt runs to the left

Apply slight tension to the tension points «A» and at tension points «B» relax by the same distance.

After aligning, observe how the conveyor belt runs over an extended time and correct it, if necessary.

The Conveyor Belt Runs to the Right.

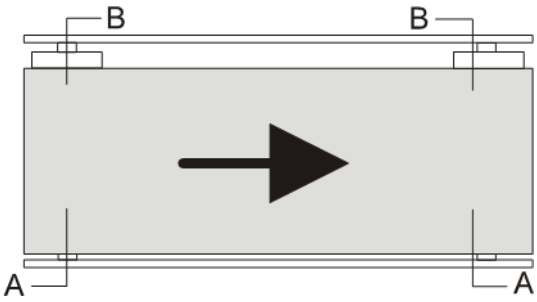

Figure 244: The feed belt runs to the right

Apply slight tension to the tension points «A» and at tension points «B» relax by the same distance.

After aligning, observe how the conveyor belt runs over an extended time and correct it, if necessary.

The Conveyor Belt is Running Transversely.

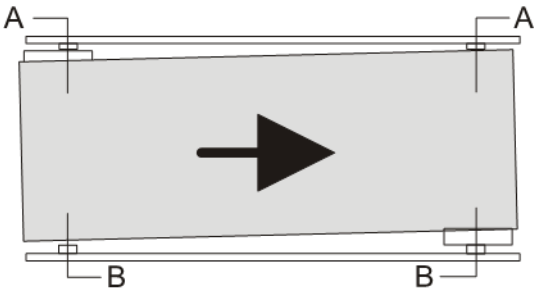

Figure 245: The feed belt is running transversely

Apply slight tension to the tension points «A» and at tension points «B» relax by the same distance.

After aligning, observe how the conveyor belt runs over an extended time and correct it, if necessary.

9.6.1.7 Adjusting the Distance between the Feed Belt and the Spiked Lattice (Standard Setting)

Orientation Settings

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

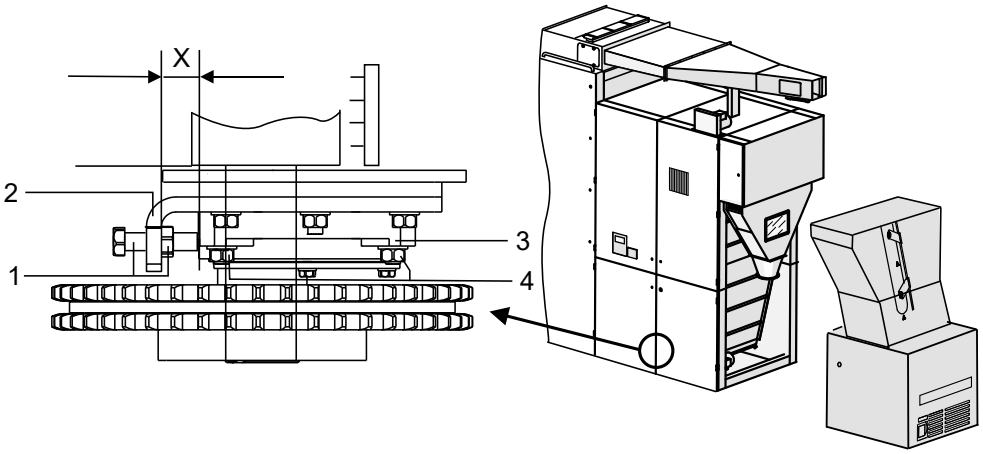

Figure 246: Adjusting the distance between the conveyor belt and the spiked

After replacement of the conveyor belt, the standard setting must be checked and/or adjusted.

Carry out a Standard Adjustment

1. Loosen the nuts 4.
2. Using the screw and the nut 1 adjust the distance X between the bearing plate 3 and the carrier 2.

Distance X: Standard setting for distance between feed belt and spiked lattice (on both sides)

Distance X on both sides	30.0 mm

9.6.1.8 Conveyor Belt Drive

9.6.1.9 Tightening the Chain

Orientation Material Transport in the Storage Area

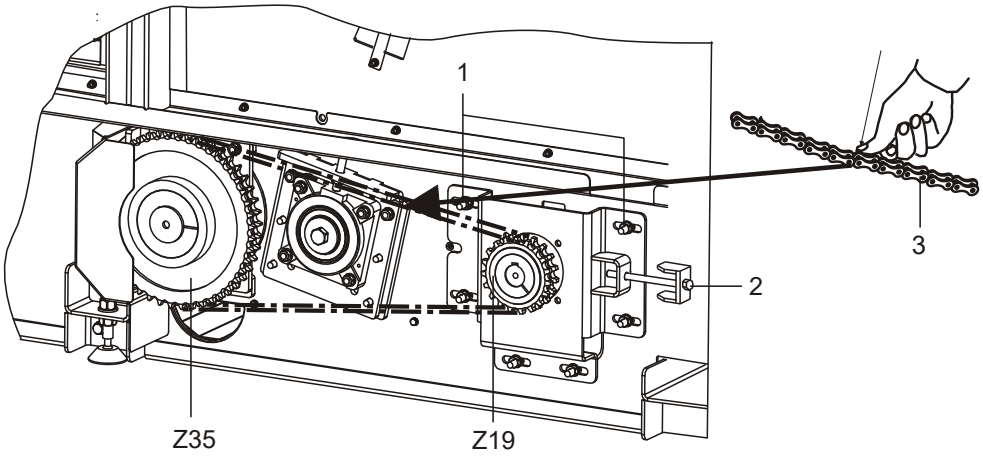

Figure 247: Tightening the chain

Prerequisites Make sure that the criteria are obeyed:

✓ Do NOT tighten the chain 3 to such a degree that it cannot be pressed inwards

1. Loosen all nuts 1.
2. Use the screw 2 to tighten the chain 3.

9.7 Delivery Section

9.7.1 Spike Lattice

9.7.1.1 Tools

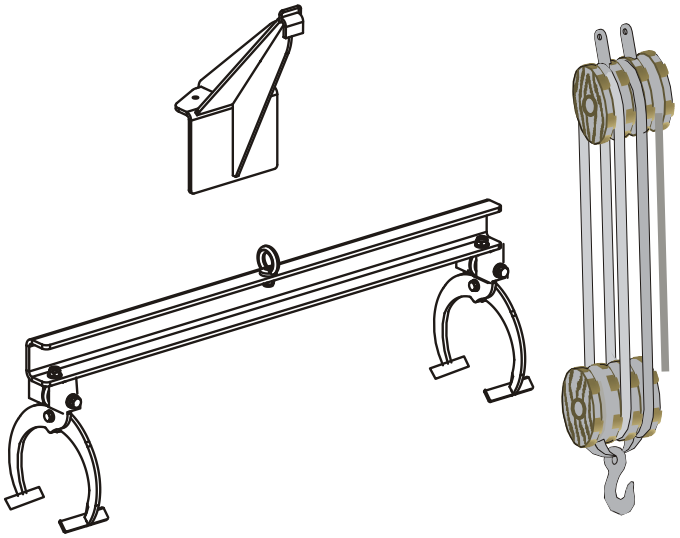

Figure 248: Tools_spike lattice

Suspension Device for the B 76

Removal of spiked lattice for the B 76

9.7.1.2 Remove the Spiked Lattice

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Preparations

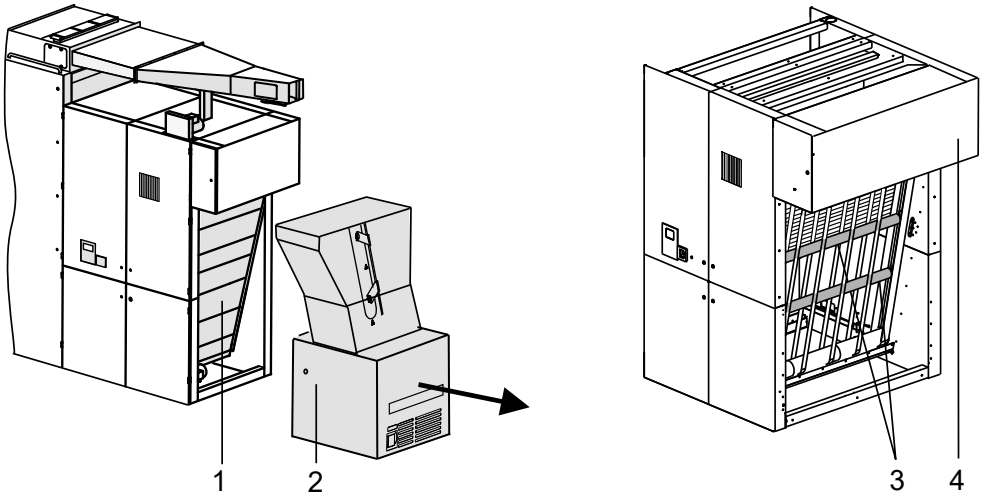

Figure 249: Remove the spiked lattice.

Prerequisites Make sure that the criteria are obeyed:

✓ The blender has to be completely empty.

1. Remove the electrical connector from the module.

Prerequisites Make sure that the criteria are obeyed:

✓ Use the castor jacks to move the module 2 away from the blender.

1. Unscrew the cover plates 1 which are now exposed.
2. Remove the two supporting rollers 3.
3. Unscrew the doffing unit 4.

Install the Dismantling Tool

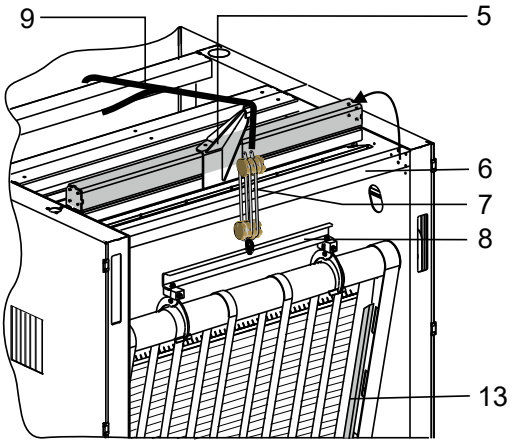

Figure 250: Install the dismantling tool

1. Remove the slide elements 13 on both sides.
2. Remove the crossbar 6, place it on the rear crossbar and bolt tightly.
3. Place the support 5 on the cross-member 6 and tighten firmly.

Orientation Suspension device for the B76

1. Pull the strap provided 9 through the guide in the support 5 and fasten it to the crossmember 6.
2. Hang the pulley tackle 7 on the strap 9.
3. Use the lifting device 8 to grip the spiked lattice together with the roller and tension slightly with the pulley tackle 7.

Remove Bearings

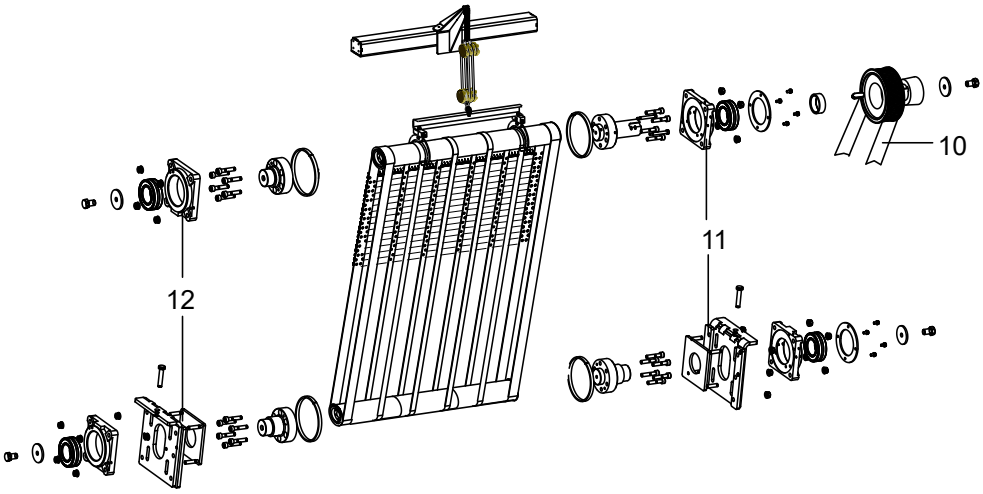

Figure 251: Remove bearings

1. Slacken the toothed belt 9:
2. Remove the bearings 10 and 11 on both sides.

Store the parts of the bearing points 10 / 11 separately. The bearing points 10 on the right side of the machine are fixed bearings and must not be confused with the bearing points 11 on the left side of the machine.

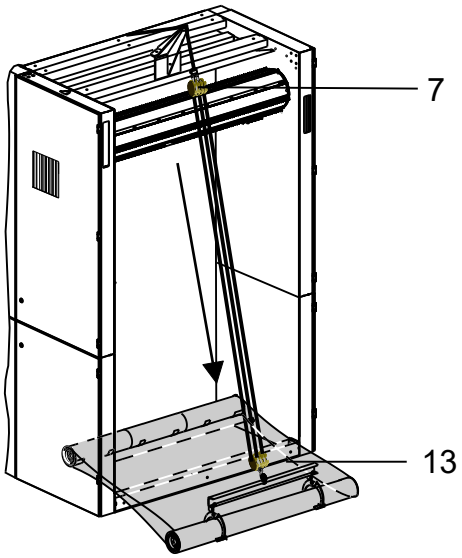

Figure 252: Lower the spiked lattice

1. Lower the spiked lattice 13 using the pulley tackle 7 until it lies on the floor.

See also

Tools [▶ 239]

9.7.1.3 Install the Spiked Lattice

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Spiked Lattice

Installation is done in the reverse order of dismantling.

When mounting the bearing points, mount the fixed bearings on the right side of the machine.

9.7.1.4 Checking Slide Elements

Visually Checking the Slide Elements

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

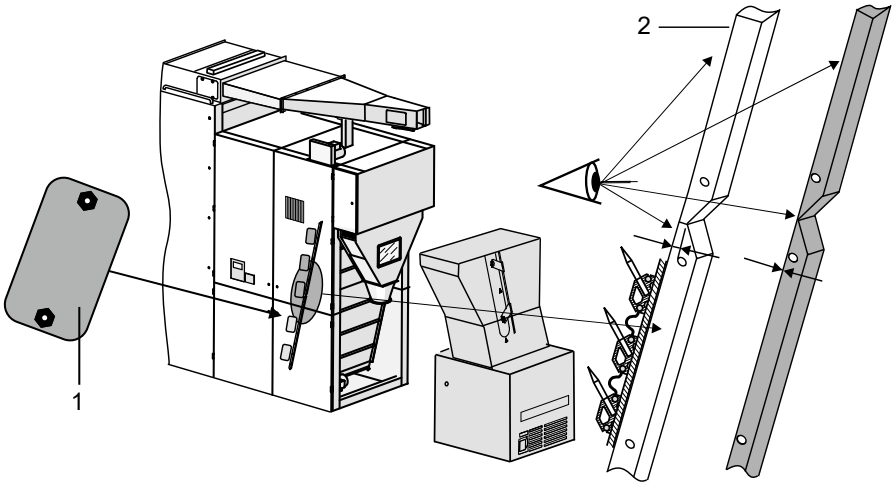

Figure 253: Checking slide elements

Prerequisites Make sure that the criteria are obeyed:

✓ Use a torch!

1. Remove the covers 1 on both sides.
2. On both sides, visually check all of the sliding pieces 2.

Action

Orientation The slide elements show traces of wear.

1. Replace the slide elements before these become worn down to the fastening screws.

Replace the slide elements before these become worn down to the fastening screws.

Install the Spiked Lattice ▸ 242

9.7.1.5 Fastening Guide Rails

Orientation Delivery Section

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

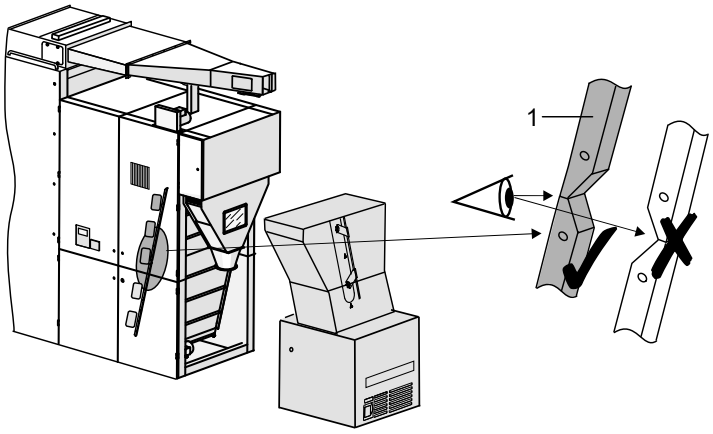

Figure 254: Fastening guide rails

Ensure that the guide rails 1 are correctly positioned when installing them.

9.7.1.6 Tensioning the Spiked Lattice

Orientation Settings

Procedure for tensioning the spiked lattice

Tension the Spiked Lattice

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

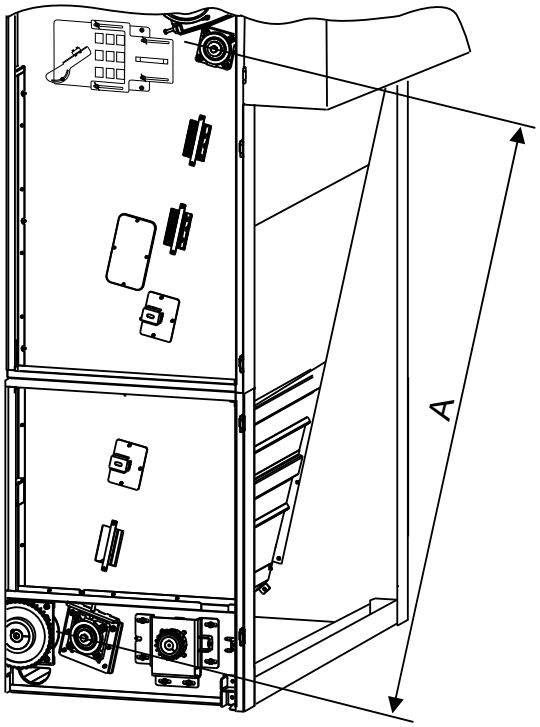

Figure 255: Tension the spiked lattice

Tension the spiked lattice only at the bottom roller.

Distance between centres A

Tension of spiked lattice: 0.0 %	2483.0 mm
Tension of spiked lattice: 0.5 %	2495.0 mm
Tension of spiked lattice: 0.8 %	2502.0 mm

9.7.1.7 Spiked-Lattice Drive Unit

Orientation Delivery section

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

To ensure lubrication of the gearwheels, install the motor with the gearing in the prescribed position.

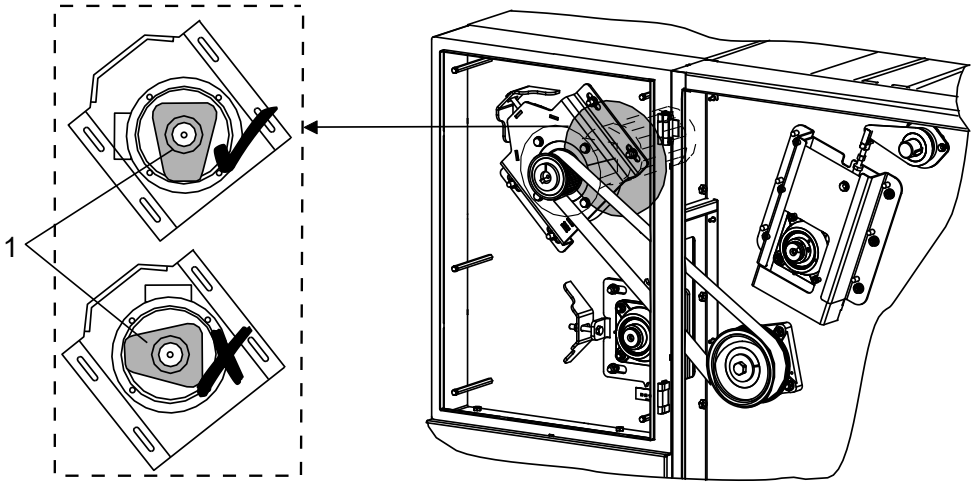

Figure 256: Spiked-lattice drive unit

Install the gear motor 1 in such a manner that the housing with the oil reserve is at the bottom. (See diagram.)

9.7.1.8 Tensioning the Toothed Belts of the Spiked-lattice Drive Unit B76

Orientation Settings

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Setting aim: Preliminary tensioning and maintenance of the belts are required to ensure an optimal service life and optimal power transfer. Excessive tensioning of belts can lead to bearings and belts being damaged.

Insufficient tensioning of belts can lead to belt teeth skipping.

Determining the Deflection (d)

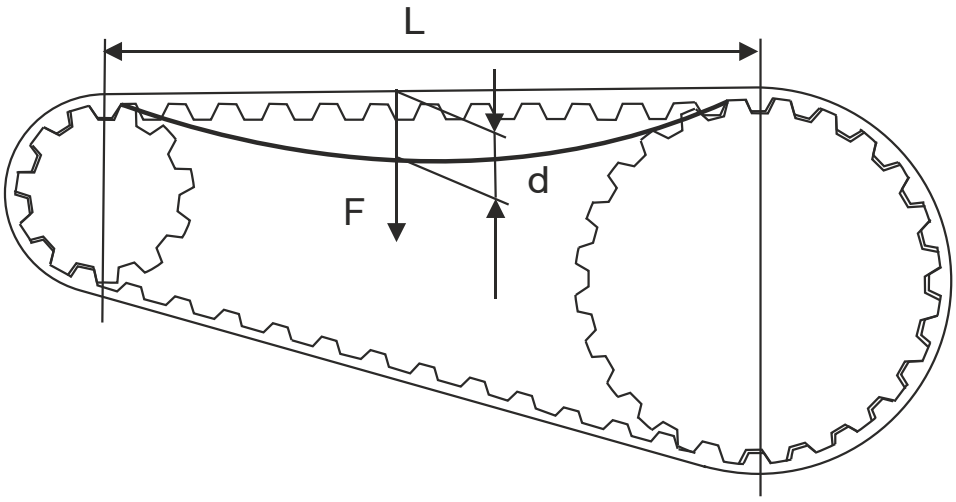

Figure 257: Determining the deflection

1. Keep the belt and belt pulleys clean.
2. Remove any dirt that has accumulated at the tooth base.

The length L is defined to be the distance between the centres of the toothed-belt pulleys.

Example of toothed-belt deflection

Distance between pulley centres L: 640 mm, deflection d: approx. 1.5 %	Deflection at 640 mm approx. 10 mm.
Force F	Carefully push the belt inwards until some resistance can be felt.

1. Push the belt inwards by approx. 1.5 % of the length L at the point halfway between the centres of the pulleys, applying a force F.

Tightening the Toothed Belts

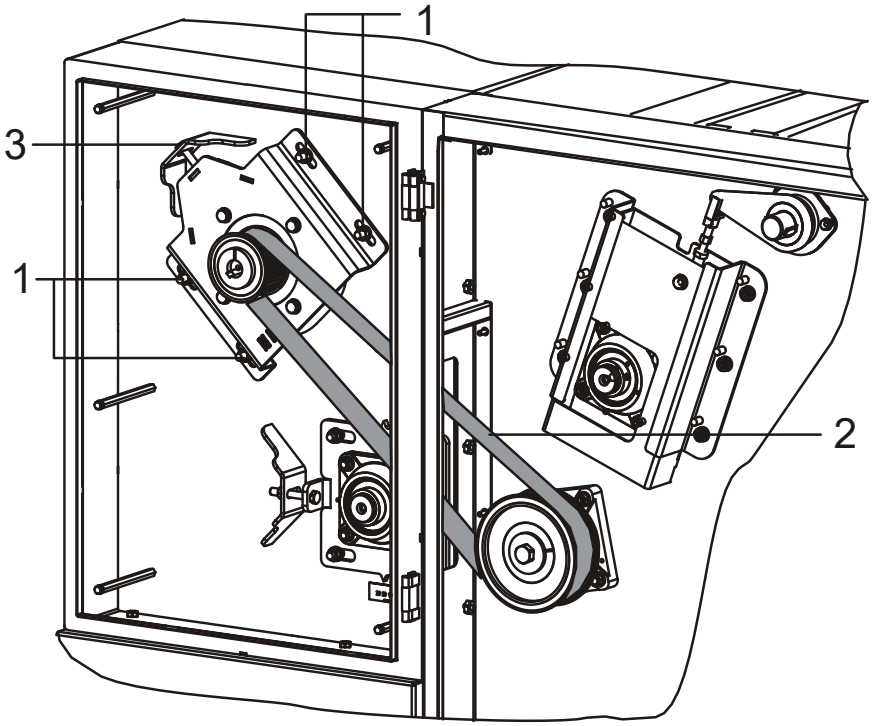

Figure 258: Tightening the toothed belts

1. Loosen the screws 1.
2. Using the screw 3, tension the toothed belt 2 in accordance with specifications.

9.7.1.9 Spiked Bar

9.7.1.10 Remove the Spike Lattice

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

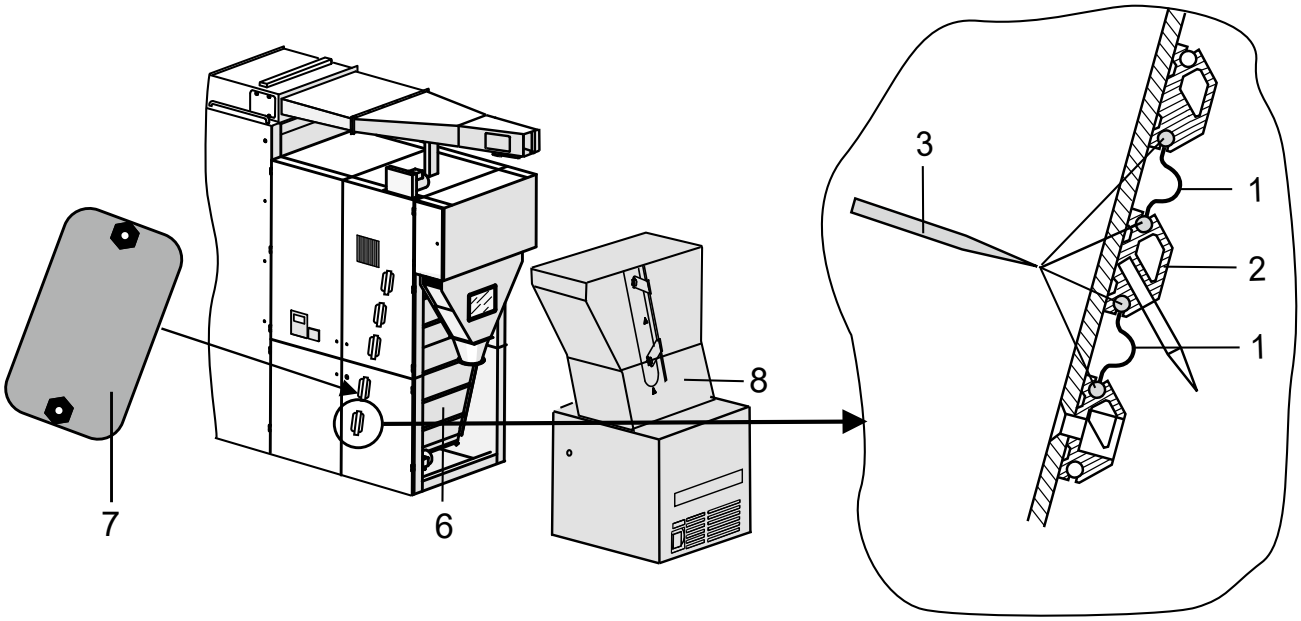

Figure 259: Remove the spike lattice

Prerequisites Make sure that the criteria are obeyed:

✓ The machine must be completely empty.

1. Use the castor jacks to move the module 8 away from the blender.
2. Unscrew the cover plates 6 which are now exposed.
3. Completely slacken the spiked lattice.
4. Move the defective spiked lattice 2 into the vicinity of opening 7 and remove the safety plate.
5. Remove the safety spikes 3 above and underneath the spiked bar 2 to be dismantled. If necessary, cut the sealing strips 1.
6. Remove the spiked bar 2.
7. Use pliers to remove the remaining sealing strips 1.

9.7.1.11 Install Spike Lattice

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

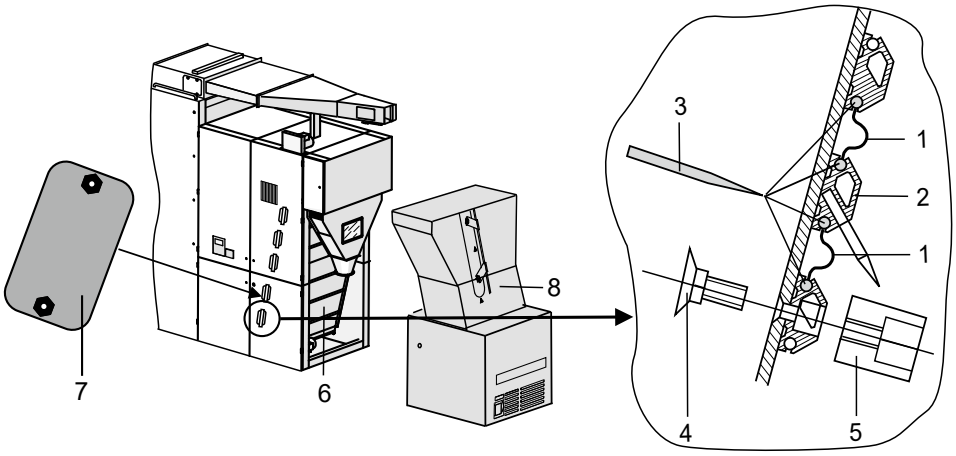

Figure 260: Install spike lattice

Prerequisites Make sure that the criteria are obeyed:

✓ With a drop of «Loctite 932» on the threads (low to moderate screw retention) secure the screws 4.

1. Mount the new spiked bar 2, the two sealing strips 1 and the threaded parts 4 and 5.
2. Push the retaining pins 3 laterally and as far as possible into the sealing strips 1.
3. It is imperative to tighten the special nut 5 at the correct torque.

Thread dimension	M5
torque	5 Nm

1. Refit the removed parts 6 and 7.
2. Move the module 8 back to the blender and screw it in place.
   Tensioning the Spiked Lattice ▸ 244

9.7.2 Compression Rollers

9.7.2.1 Removing the Compression Roller

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Preparatory work

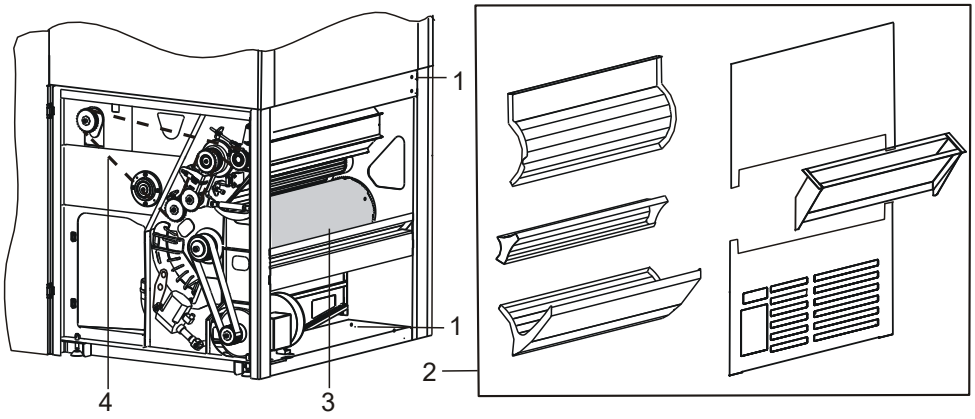

Figure 261: Preparatory work

1. Loosen the screws 1 of the cross-members on the right-hand side of the machine.
2. Remove all parts 2.
3. Cover the opening roller 3 to avoid injury.
4. Remove the chains 4 on both sides.

Marking the Numbers of the Bearing Journals for the Compression Rollers

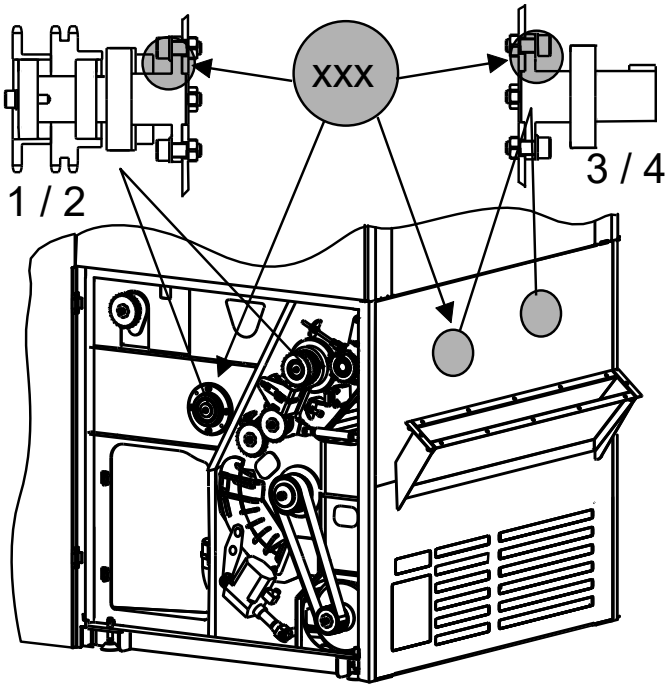

Figure 262: Marking the numbers of the bearing journals

1. It is essential that the marked bearing journals are refitted at the points where they were removed.

Orientation The bearing journals 1 / 2 or 3 / 4 are not the same and are marked with different numbers (xxx).

1. Mark the number of a bearing journal (xxx) at the point where it is removed or else note it separately.

There must be no possibility of confusion regarding the removal position and the number.

Removing the Front Compression Roller (System with Bearing Journals)

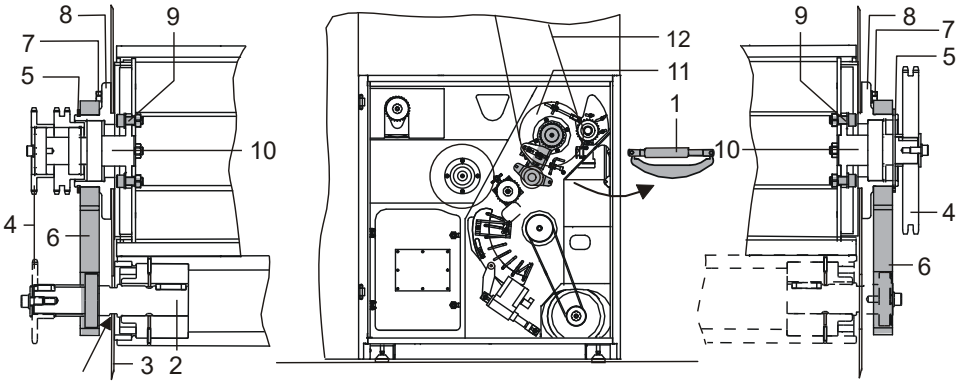

Figure 263: Removing the front compression roller (system with bearing journals)

Prerequisites Make sure that the criteria are obeyed:

✓ Prior to removing the bearing journals 10 make a note of the number and position where the journal was removed, in each case.

1. Remove the gas pressure springs 1.

Removing feed roller ▸ 256

1. The bearing journals 2 of the feed roller must fit through the holes on the side sections of the machine 3 and be horizontally positioned.
2. Secure the compression roller 11 with ropes or belts 12.
3. Remove the sprockets 4 and the Seeger circlip rings 5.
4. Pull off the bearing levers 6.
5. Remove all nuts 7 from the bearing plates 8.
6. Remove the bearing plates 8.
7. Remove the screws 9 and the bearing journals 10.
8. Remove the compression roller 11 by moving it forwards and out of the machine.

Removing the Front Compression Roller (System with Shaft)

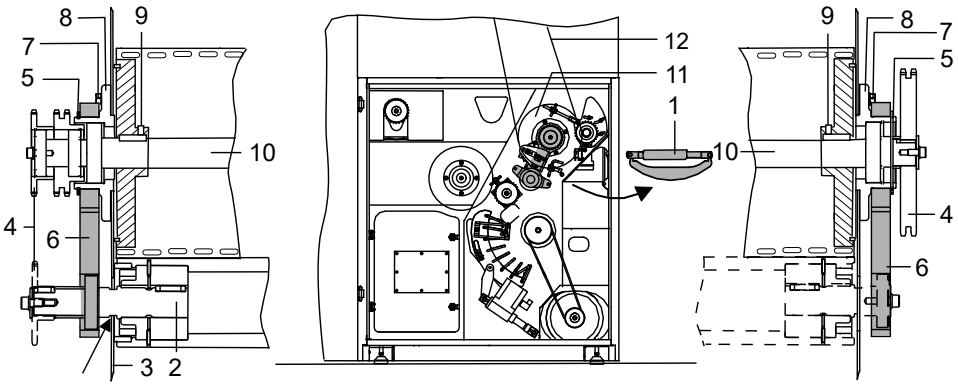

Figure 264: Removing the front compression roller (system with shaft)

1. Remove the gas pressure springs 1.

Removing feed roller ▸ 256

1. The bearing journals 2 of the feed roller must fit through the holes on the side sections of the machine 3 and be horizontally positioned.
2. Secure the compression roller 11 with ropes or belts 12.
3. Remove the sprockets 4 and the Seeger circlip rings 5.
4. Pull off the bearing levers 6.
5. Remove all nuts 7 from the bearing plates 8.
6. Remove the bearing plates 8.
7. Loosen the screws 9.
8. Do not completely loosen the screws.
9. Pull out the shaft 10.
10. Remove the compression roller 11 by moving it forwards and out of the machine.

Removing the Rear Compression Roller

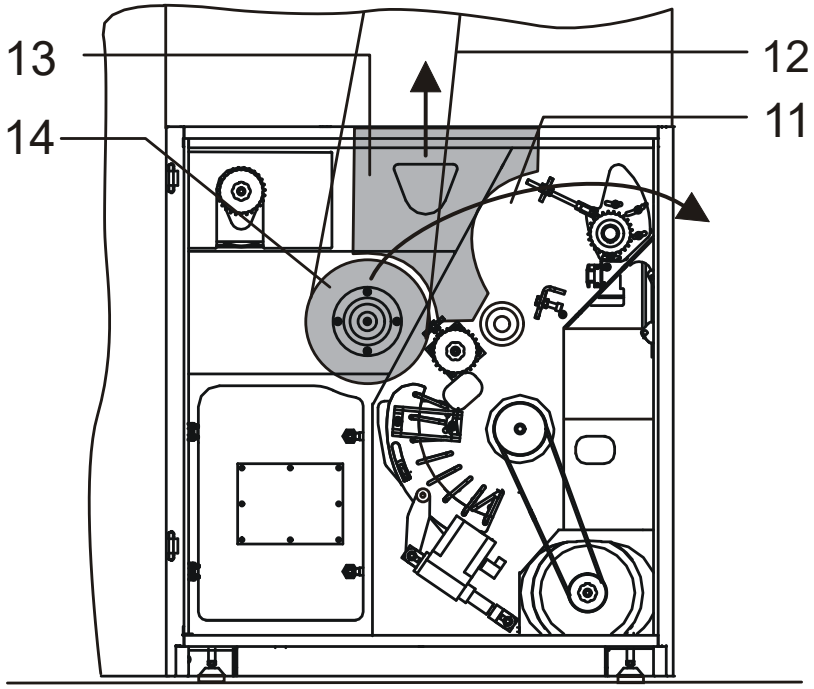

Figure 265: Removing the rear compression roller

1. Secure the compression roller 14 with ropes or belts 12.
2. The front compression roller 11 must first be removed before the rear compression roller 14 can be removed.
3. In addition, the material deflectors 13 on the inner side of the machine must be moved upwards and out of the machine.

The usual procedure is exactly the same as that applied when removing the front compression roller 11.

1. The compression roller 14 must likewise be moved forwards and out of the machine.

9.7.2.2 Installing the Compression Roller

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Installing the Front Compression Roller (System with Bearing Journals)

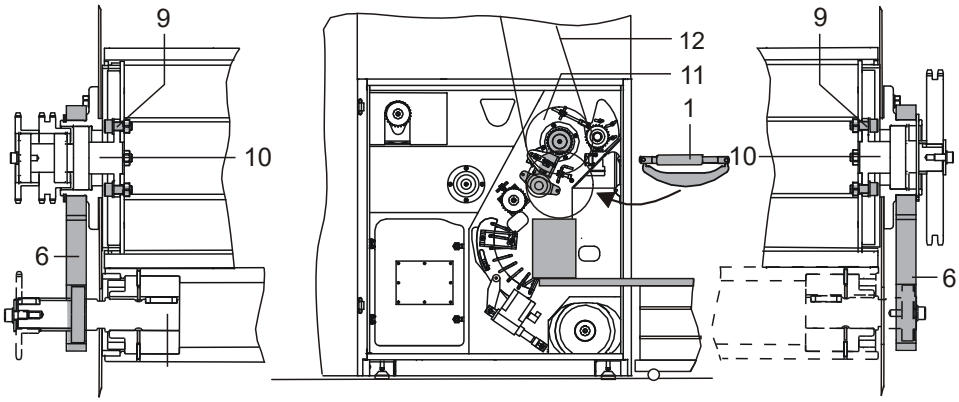

Figure 266: Installing the front compression roller (system with bearing journals)

Prerequisites Make sure that the criteria are obeyed:

✓ Coat the bore hole surfaces for the bearing levers with assembly paste.

1. Move the compression roller 11 to the position for installation and secure with ropes or belts 12.

CAUTION

Machine damage can occur if marked bearing journals are not fitted at the correct positions.

1. Centre the bearing journals 10 in the bore holes and tighten firmly using the screws 9.
2. Check the bearing journals 10 for correct positioning before tightening the screws 9 firmly.
3. Mount the bearing levers 6 and all other parts.
4. Use the assembly tool to install the gas pressure springs 1.
5. Install the opening roller.

Orientation Installing opening roller

1. Add the chain and tighten it according to specifications.

Tighten chain ▸ 259

Removing the Front Compression Roller (System with Shaft)

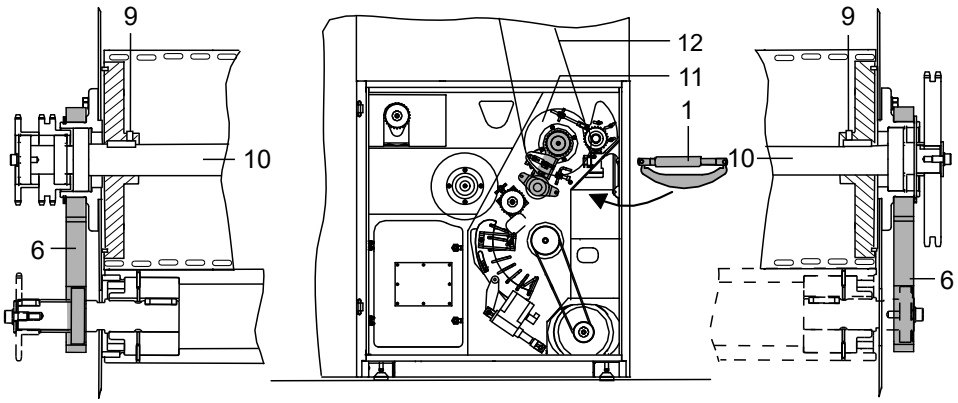

Figure 267: Removing the front compression roller (system with shaft)

Prerequisites Make sure that the criteria are obeyed:

✓ Prior to installation, lightly coat the shaft with assembly paste. Coat the bore hole surfaces for the bearing levers with assembly paste.

1. Move the compression roller 11 to the position for installation and secure with ropes or belts 12.
2. Centre the shaft 10 in the bore hole and tighten firmly using the screws 9.
3. Check the bearing journals 10 for correct positioning before tightening the screws 9 firmly.
4. Insert the shaft 10.
5. Fit the remaining parts.
6. Tighten the screws 9 firmly.
7. Mount the bearing levers 6 and all other parts.
8. Use the assembly tool to install the gas pressure springs 1.
9. Install the opening roller.

Installing opening roller ▸ 263

1. Add the chain and tighten it according to specifications.

Tighten chain ▸ 259

9.7.3 Feed Rollers

9.7.3.1 Tools

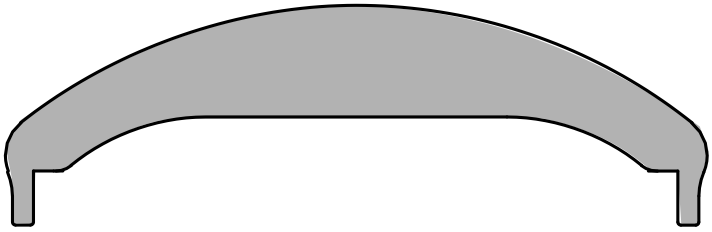

Figure 268: Installation tool for R/S module gas spring

Installation Tool for R/S Module Gas Spring

1. Remove and install gas springs of feed rollers.

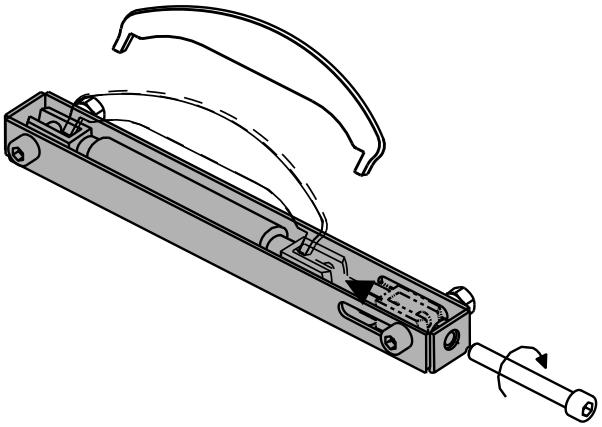

Figure 269: Preparing the tool for gas springs

Preparing the Tool for Gas Springs

1. Compress gas spring before installation.

9.7.3.2 Removing Feed Roller

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Preparatory Work

Orientation Remove the opening roller.

Removing the opening roller ▸ 261

Removing Gas Pressure Springs

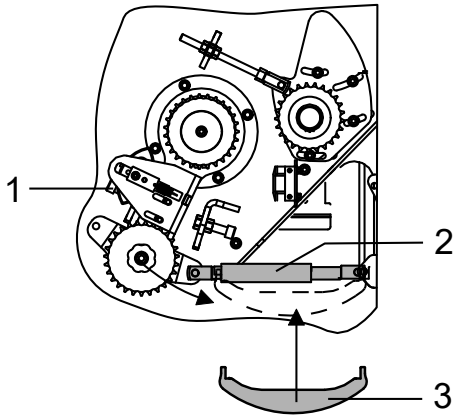

Figure 270: Removing gas pressure springs

1. Use the adjusting screws 1 to press together the gas pressure springs 2 on both sides until the clamp 3 can be applied.

Tools ▸ 256

1. Release the pressure on the adjusting screws 1.
2. Subsequently remove the bolts and the gas pressure springs 2.

Removing the Feed Roller

Carry out all steps on both sides.

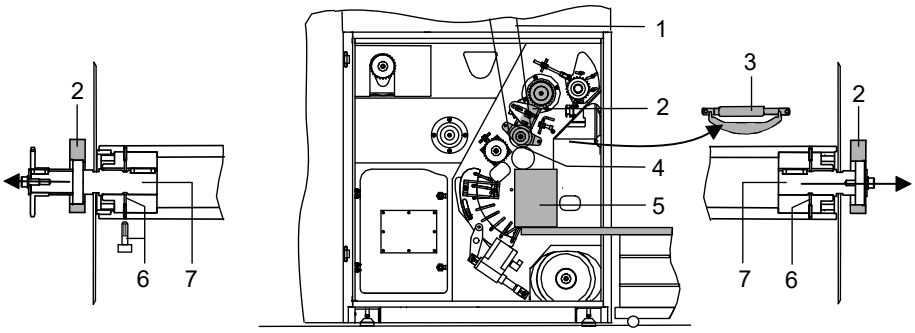

Figure 271: Removing the feed roller

1. The gas pressure springs 3 have been removed.
2. Secure the feed roller 4 with ropes or belts 1.
3. Remove as many parts as necessary until the bearing levers 2 can be removed.
4. Loosen all screws 6.
5. Use the ropes or belts 1 to lift the feed roller to the centre of the opening in the side section of the machine.
6. Pull off the bearing journals 7.

7. Lower the feed roller 4 on to the support 5.

9.7.3.3 Installing the Feed Roller

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Preparing the Gas Pressure Spring for the Installation

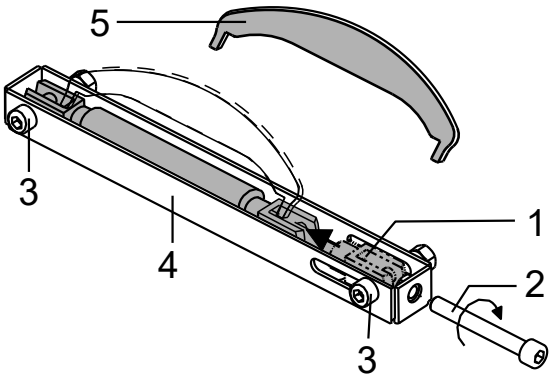

Figure 272: Preparing the gas pressure spring for the installation

1. Place the non-compressed gas pressure spring 1 in the device 4.

Orientation Preparing the tool for gas springs

The bolts 3 and nuts are used to secure the spring.

1. Insert the bolt 2 so that the gas pressure spring 1 becomes compressed.
2. As soon as the gas pressure spring 1 has been fully compressed, insert the tool 5.

The gas pressure spring must be positioned against the stops.

1. Carefully loosen the clamping bolt 2.

Ensure that the tool is correctly positioned.

1. Remove the bolts 3.

Procedure for Installing Feed Rollers

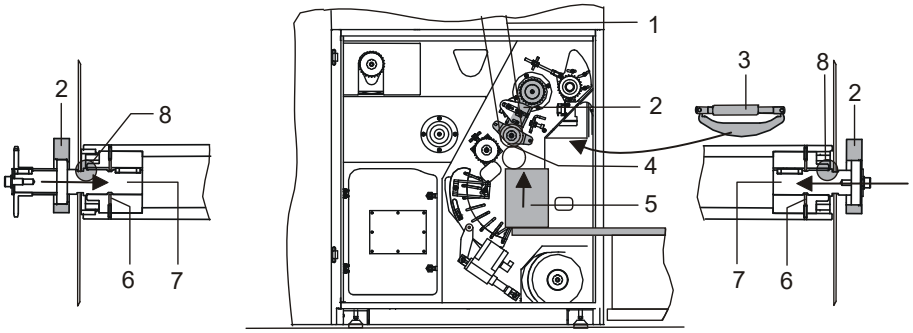

Figure 273: Procedure for installing feed rollers

1. Move the feed roller 4 to the position for installation and secure it with ropes 1.

Prerequisites Make sure that the criteria are obeyed:

✓ Prior to installation, coat the bearing journals 7 with assembly paste.

1. Insert the bearing journals 7 into the feed roller 4.

The bearing journals must be inserted into the feed roller 8 up to the limit stop.

1. Mount the bearing levers 2 and all other parts.
2. Use the assembly tool to install the gas pressure springs 3.
3. Adjust the feed roller 4 laterally, so that it is evenly aligned, and subsequently tighten the screws 6 firmly.

Tighten all four screws 6 on the circumference firmly.

1. Install the opening roller.

Installing opening roller ▸ 263

1. Add the chain and tighten it according to specifications.

Tighten chain ▸ 259

9.7.3.4 Tighten Chain

Orientation R/S module

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

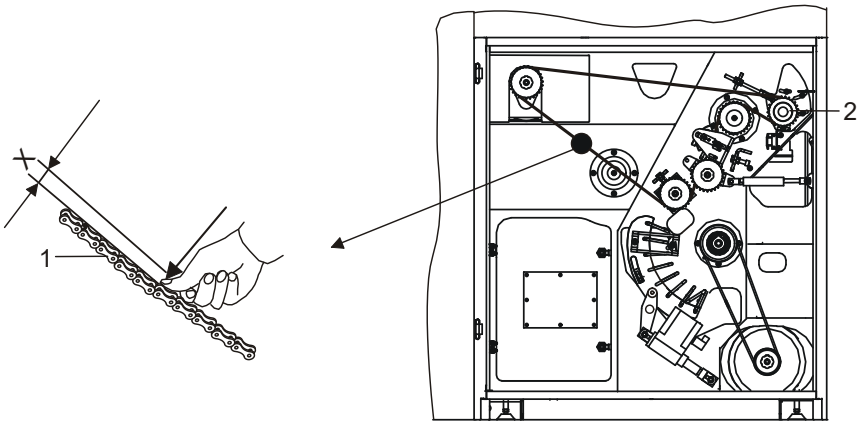

Figure 274: Tighten chain

When checking the chain 1, it must deflect by the specified amount («X»).

If the deflection distance is incorrect, use a chain tensioner 2 to adjust the chain tension.

Tightening Chain

Dimension X	5.0 - 10.0 mm

9.7.3.5 Adjusting the Distance between the Feed and Opening Rollers

Orientation R/S module

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

To optimize the running properties, the feed roller 3 can be adapted to an assortment.

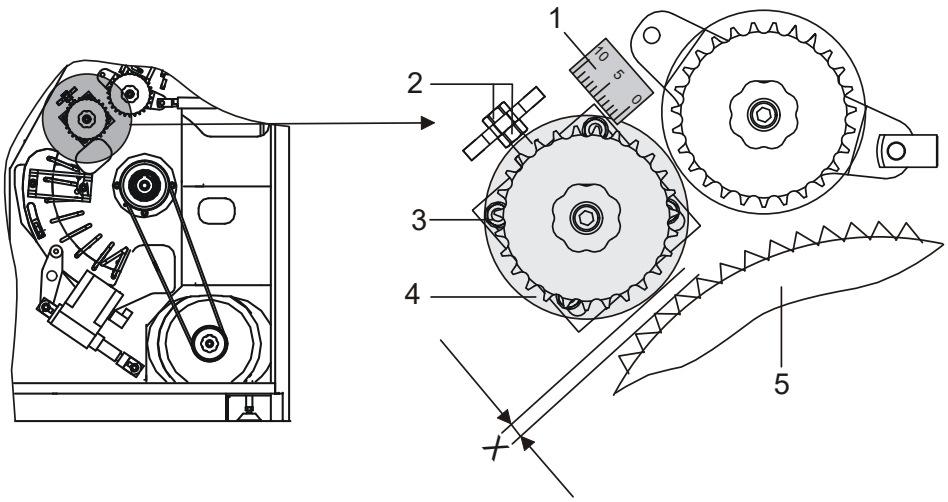

Figure 275: Adjusting the distance between the feed and opening rollers

Prerequisites Make sure that the criteria are obeyed:

✓ Select the distance X between the feed roller and opening roller.
✓ The settings made on both sides must be equal, in order that the feed roller 4 is as parallel as possible to the opening roller 5.

1. Loosen the nuts 3 on both sides.
2. Use the nuts 2 to set the feed roller 4 to the required value on the scale 1.

Distance between Feed Roller and Opening Roller

Distance X: 3.0 mm	Minimum distance. X must not fall below minimum distance value.
Distance “X”: 4.0 mm	Standard setting for all materials

The optimal setting is determined by trial and error.

9.7.4 Opening Roller

9.7.4.1 Removing the Opening Roller

Prerequisites Make sure that the criteria are obeyed:
✓ The main switch is set to the position OFF and the main switch is padlocked.

Preparations

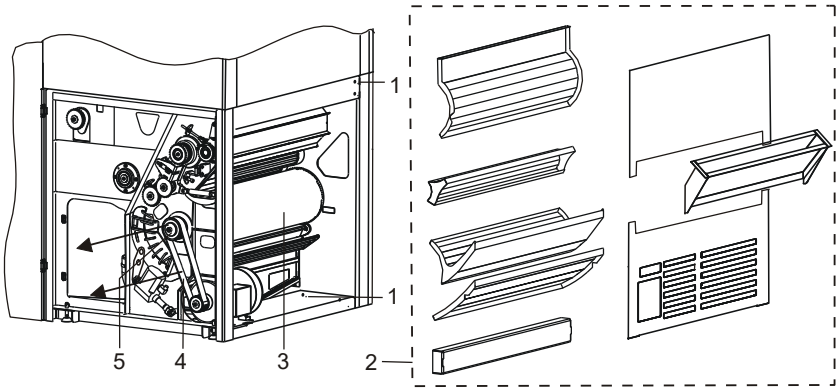

Figure 276: Removing the opening roller_1

1. Loosen the bolts 1 of the cross-members on the right-hand side of the machine.
2. Remove all parts 2 until the opening roller 3 is accessible.
3. Slacken and remove the belt 4.
4. Remove the belt pulley 5.

Preparing Auxiliary Equipment for Removal

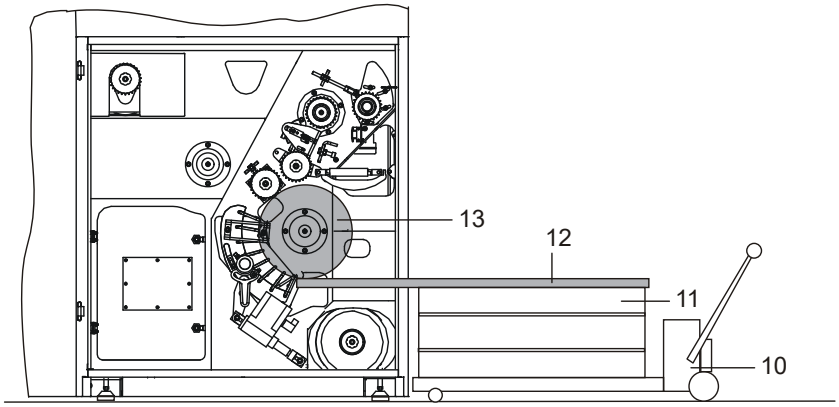

Figure 277: Preparing auxiliary equipment for removal

1. Prepare auxiliary equipment for removal, featuring pallets 11 and boards 12, on a trolley jack 10.

Orientation Move the structure towards the underside of the opening roller 13.

1. Carefully lift the auxiliary equipment using the trolley jack until the boards 12 lightly about the opening roller 13.

Avoid applying pressure to the opening roller 13.

Removing Opening Roller

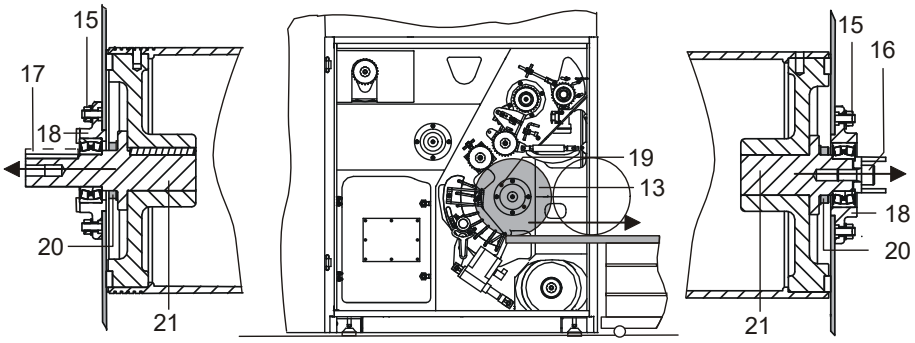

Figure 278: Removing opening roller

1. Remove all nuts 15.
2. Remove the bolt 16.
3. Remove the block 17.
4. Screwing the screws in the threaded holes 19 forces off the bearing plates 18.
5. Remove all screws 20.
6. Remove the two bearing journals 21 from the opening roller.

9.7.4.2 Installing Opening Roller

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

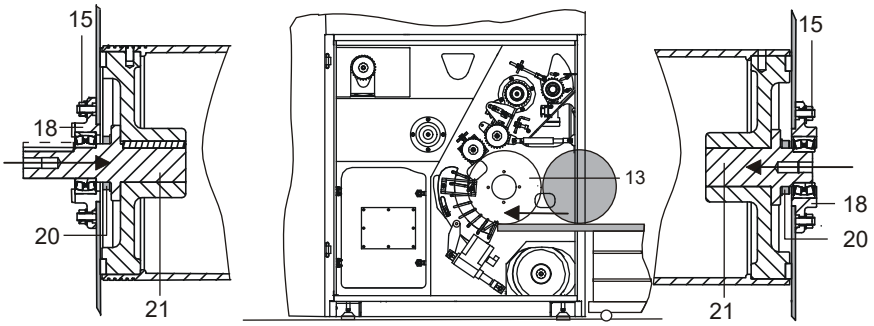

Figure 279: Installing opening roller

1. Use the auxiliary equipment for removal to move the opening roller 13 to the installation position.
2. Roll the opening roller 13 into the machine.

Orientation Align the opening roller 13 in such a way that the bearing journals 21 can be inserted into the bore holes of the opening roller.

Prerequisites Make sure that the criteria are obeyed:

✓ Prior to installation, coat the bearing journals 21 with an assembly paste.

1. Insert the bearing journals 21 into the bore holes of the opening roller.
2. Insert the screws 20 and tighten firmly.
3. Install the bearing plates 18.
4. Tighten the nuts 15 firmly.
5. Lower the auxiliary equipment and rotate the opening roller 13.
6. Install all remaining parts together with the drive pulley, and then fit the toothed belt and tighten it according to specifications.

Controlling and Tightening Toothed Belts ▸ 263

9.7.4.3 Controlling and Tightening Toothed Belts

Orientation R/S Module

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

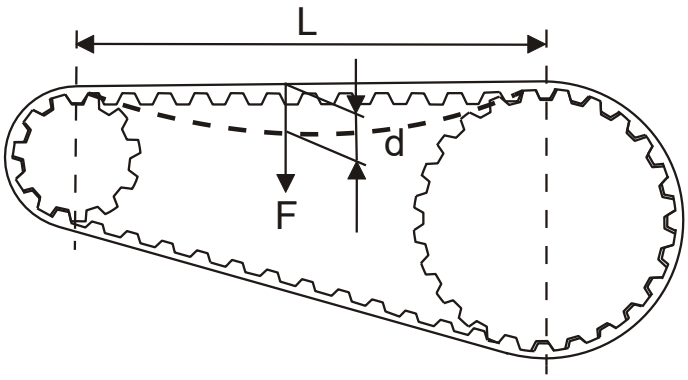

Figure 280: Controlling and tightening toothed belts_1

Setting aim: Appropriate preliminary tensioning and maintenance of the belts are required to ensure an optimal service life and power transfer. If the belts are too tight, bearings and belts may sustain damage.

If the belts are too slack, the teeth in the belt may skip leading to faults and damage. In addition, care must be taken to ensure the cleanliness of belts and belt pulleys as well as to remove any dirt accumulation at the tooth base.

Example of Deflection for a Toothed Belt with a 640 mm Distance between Axes L

Deflection d as a percentage of the distance between axes L	1.50 %
Deflection d at approx. 1.5% of the distance between axes L=640 mm	Approx. 10 mm
Force F	Push in the belt carefully until some resistance can be felt.

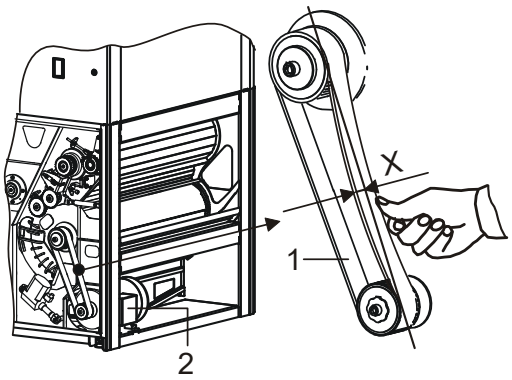

Figure 281: Controlling and tightening toothed belts_2

The toothed belt 1 must deflect by the specified amount X.

If the deflection distance is not correct, then the toothed belt must be tightened by moving the motor.

Toothed-belt Load F and Deflection (s)

Load F on the toothed belt	100 N = 10.0 kg
Deflection s of toothed belt 7.00 mm	7.00 mm
Measurement with instrument for measuring the belt tension	Frequency = 96 Hz

9.7.4.4 Proximity Switch for Ascertaining the Speed of the Opening Roller

R/S module

Correct transmission of pulses for determining the speed of the opening roller.

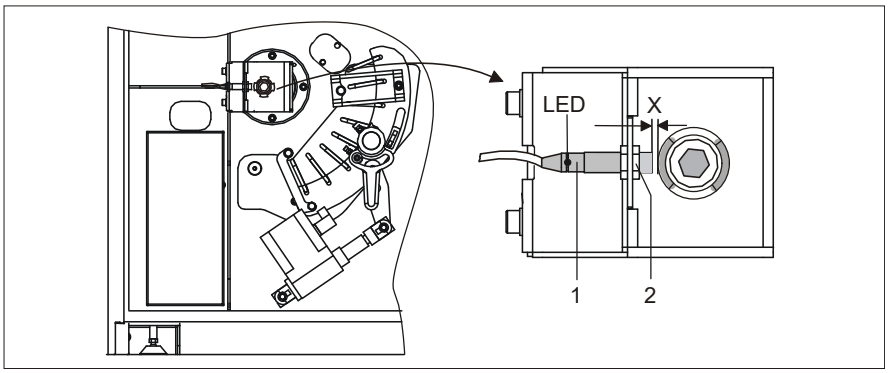

Figure 282: Proximity switch for ascertaining the speed of the opening roller

Use the two nuts 2 to set the proximity switch 1.

When the proximity switch is active, the LEDs are lit up.

Proximity Switch

Dimension X	1.0 to 2.0 mm

9.7.5 Grating

9.7.5.1 Adjusting the Grating (Waste Volume Rate)

R/S Module ▸ 168

The positioning of the electric cylinder lifting rod 1 determines the positions of the dust bars 2. This in turn determines the effectiveness of the dust bars regarding the removal of impurities from the waste as well as its composition. The speed of the opening roller 3 also has an effect on the cleaning intensity as well as on the fibre load.

Setting aim: Optimum degree of cleaning with the least possible waste volume.

Altering the Waste Volume Rate (Without the VarioSet)

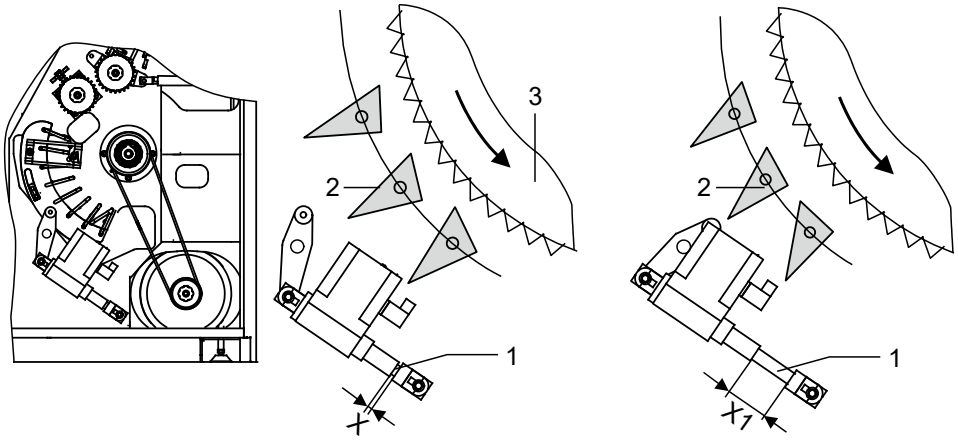

Figure 283: Adjusting the grating

Use the data screen to adjust the setting for the electric cylinder lifting rod 1 to the required value.

The more the lifting rod 1 has retracted, the greater the influence of the dust bars 2 on the waste volume rate

Setting for Dust Bars (Without the VarioSet)

The data-screen setting value of “5” corresponds to the dimension X	Maximum waste volume rate
The data-screen setting value of “100” corresponds to the dimension X1	Minimum waste volume rate

Menu 10: "10 Production" ▸ *88*

Use the data screen to adjust the speed setting for the opening roller 3 to the required value.

A higher speed can also result in a greater fiber load.

Speed of the Opening Roller (Without the VarioSet)

The data-screen setting value of "500" corresponds to "low speed"	Low cleaning intensity, small fibre load
The data-screen setting value of "1500" corresponds to "high speed"	High cleaning intensity, large fibre load

Menu 10: "10 Production" ▸ *88*

It is recommended to analyse the waste composition after each setting alteration.

The optimal setting for a given material must be determined by trial and error.

Altering the Waste Volume Rate (With the VarioSet)

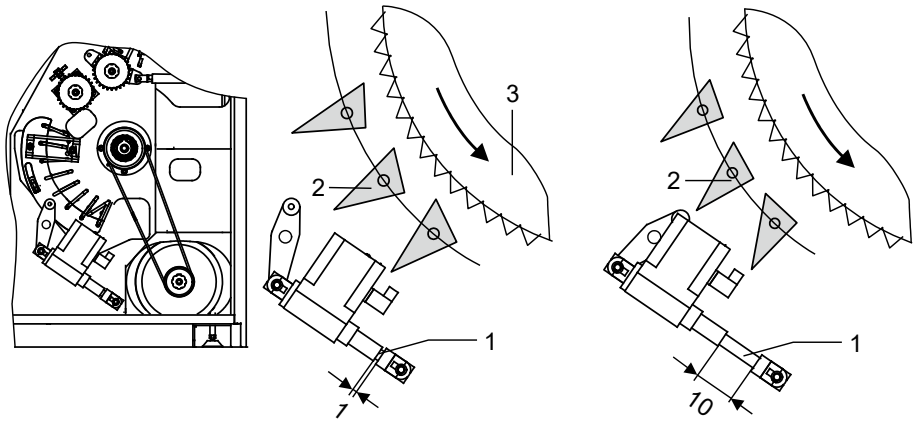

Figure 284: Adjusting the grating_1

Use the data screen to adjust the setting for the electric cylinder lifting rod 1 to the required value.

The more the lifting rod 1 has retracted, the greater the influence of the dust bars 2 on the waste volume rate.

Setting for Dust Bars (With the VarioSet)

Data-screen setting value of “1”	Maximum waste volume rate
Data-screen setting value of “10”	Minimum waste volume rate

Menu 10: "10 Production" ▸ 88

Use the data screen to adjust the speed setting for the opening roller 3 to the required value.

A higher speed can also result in a greater fibre load.

Speed of the Opening Roller (With the VarioSet)

The data-screen setting value of "0.1" corresponds to "low speed"	Low cleaning intensity, small fibre load
The data-screen setting value of "1.0" corresponds to "high speed"	High cleaning intensity, large fibre load

Menu 10: "10 Production" ▸ 88

It is recommended to analyze the waste composition after each setting alteration.

The optimal setting for a given material must be determined by trial and error.

9.7.5.2 Electric Cylinder for the Grating Setting

Orientation R/S Module

Setting aim: If an electric cylinder 2 is replaced, the lifting rod 1 is to be set so that it does not move up to the limit stop.

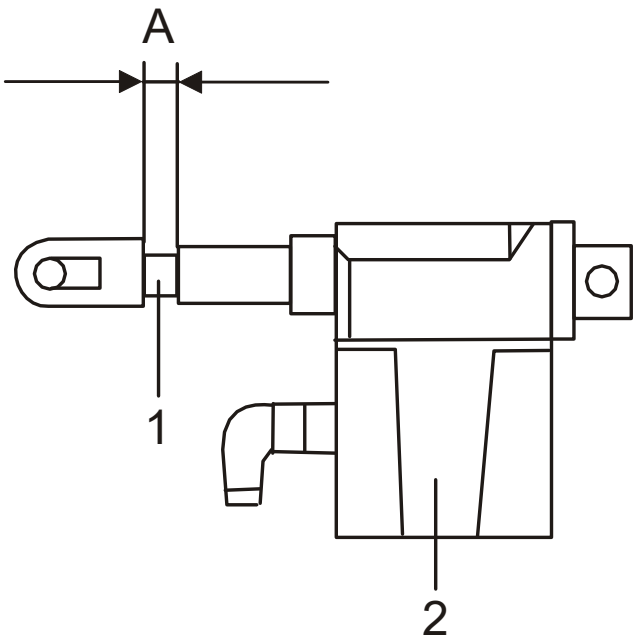

Figure 285: Electric cylinder for the grating setting

1. Turn the lifting rod 1 until the required value for dimension A is achieved.

Lifting Rod

Dimension A	7– 10 mm

1. After installing the “M33” electric cylinder, measure the stroke by running the test program. The saved data will thereby be updated. *82.10* ▸ *109*
2. After installing the “M34” electric cylinder, measure the stroke by running the test program. The saved data will thereby be updated. *82.11* ▸ *109*

9.7.5.3 Setting the Waste Transport Flap

Orientation R/S Module

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

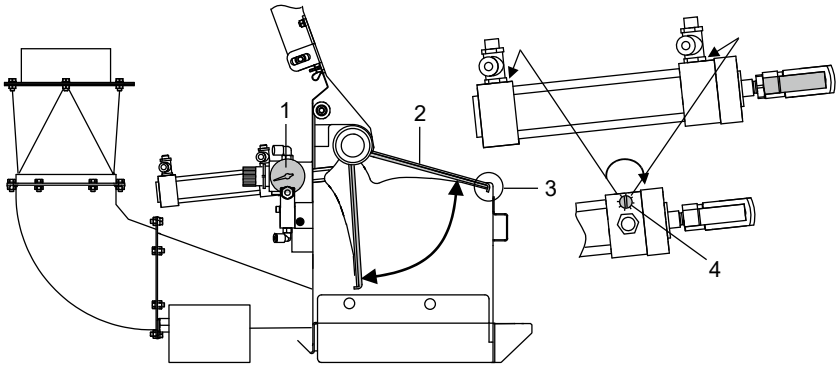

Figure 286: Setting the waste transport flap

If the flap 2 strikes against the end stop 3, then the setting for the flap 2 will have to be corrected.

The flap 2 must seal the waste chamber at the waste extractor.

Preparatory Work

1. Screw in all bolts for the end-position dampers 4 completely clockwise rotation. The end-position dampers are now set for maximum damping.
2. Set the pressure at the regulating valve 1 to 1.8 bar.

Exhaust-Air Throttles Settings Standard Setting

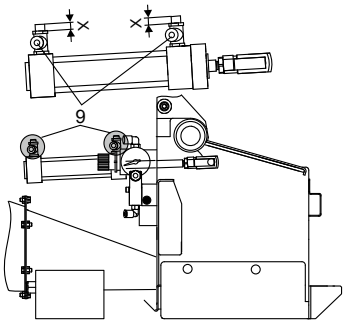

Figure 287: Exhaust-air throttles settings (standard setting)

Set both throttles 9 to X.

Restriction Settings Standard Setting

Dimension X	5.00 mm

Prerequisites Make sure that the criteria are obeyed:

✓ The prescribe pressure of 1.8 bar is set.

1. Activate the flap 2 using the manual emergency override 6.

2. Unless the flap 2 moves to the corresponding end position, unscrew the relevant screw a little.

Flap Settings Standard Setting

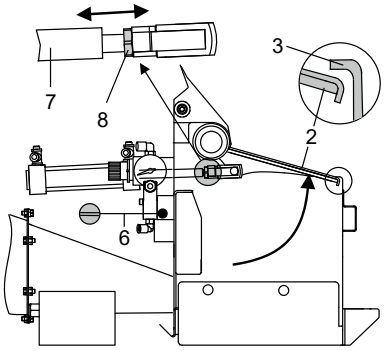

Figure 288: Flap settings (standard setting)

1. Using the manual override 6 at the solenoid valve, activate the flap 2.
2. Loosen the nut 8 at the fork head.
3. By twisting the piston rod 7, set a small gap between the flap 2 and the stop 3.

End-Position Dampers Settings Standard Setting

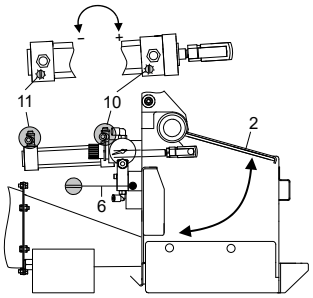

Figure 289: End-position dampers settings (standard setting)

1. Set screws 10 and 11 for the end-position dampers in accordance with specifications.

End-Position Dampers Settings Standard Setting

End-position damper 10	Screw in, and then unscrew by 3 turns.
End-position damper 11	Screw in, and then unscrew by 2.5 turns.

1. With the aid of the manual emergency override 6 at the solenoid valve, move to both end positions.
2. The flap 2 must gently move against both end points.

3. The dampening effect needs to be increased, if the flap 2 strikes against the end-position dampers causing audible noise. Tighten the screw 10 or 11 +.

9.8 Control Technique

9.8.1 Basic Module of the Control System

9.8.1.1 Control System Battery

9.8.1.2 Change Battery of Control System

Working with the BuR basic module ▸ 152

Removing the battery from the control system ▸ 271

Mounting the battery in the control system ▸ 272

9.8.1.3 Removing the Battery from the Control System

Orientation The data (machine settings, shift data) in the data memory are lost if the battery is changed in voltage-free state!

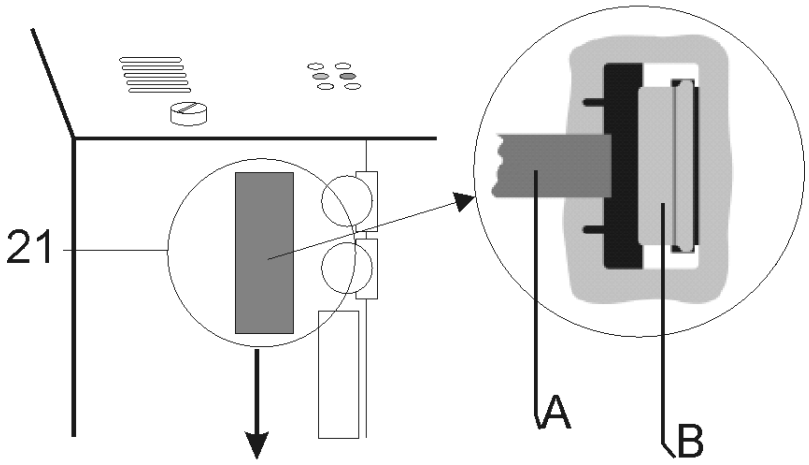

Figure 290: Removing the battery from the control system

1. Before starting to work on electronic components always make sure that static electricity is discharged by touching the machine earth cable or other ground connections. If this is not done, the components may be destroyed.
2. Use a screwdriver to remove the cover 21 of the battery.
3. Pull the pullout strip A and the battery C will jump out of its holder.

9.8.1.4 Mounting the Battery in the Control System

Orientation

Do NOT grasp the battery with nippers or non-insulated pincers. Risk of short circuit.

The battery may only be touched by hand on the front C.

Lithium batteries are considered to be special waste, and must therefore be disposed of in an appropriate manner.

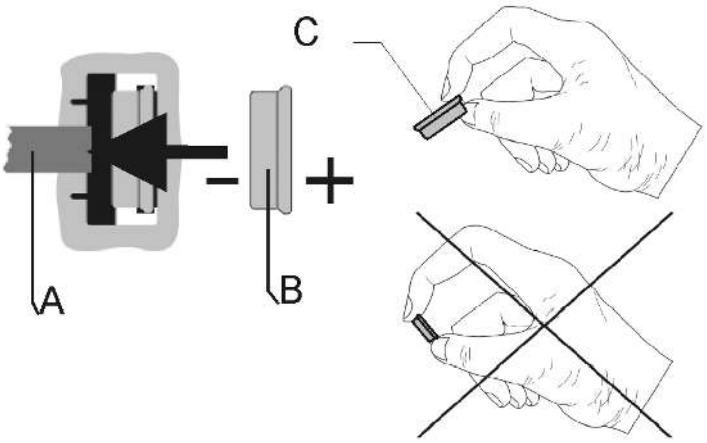

Figure 291: Mounting the battery in the control system

1. Insert new lithium battery B with correct polarity (-+) in the battery compartment. To do so pull the extracting strip A to the left and insert the battery in the battery compartment with the "+"-end to the right.
2. To allow the battery to be pulled out again later the extraction strip must A be on the left of the battery.
3. Put the projecting end of the strip A underneath the battery so that it does not stick out of the battery compartment.
4. Mount cover. First put the bottom end of the cover in the opening of the battery compartment. The top end snaps onto the cover with a little pressure.

9.8.2 Frequency Converter

9.8.2.1 Identifying the Frequency Converter

Replace the frequency converter ▸ 228

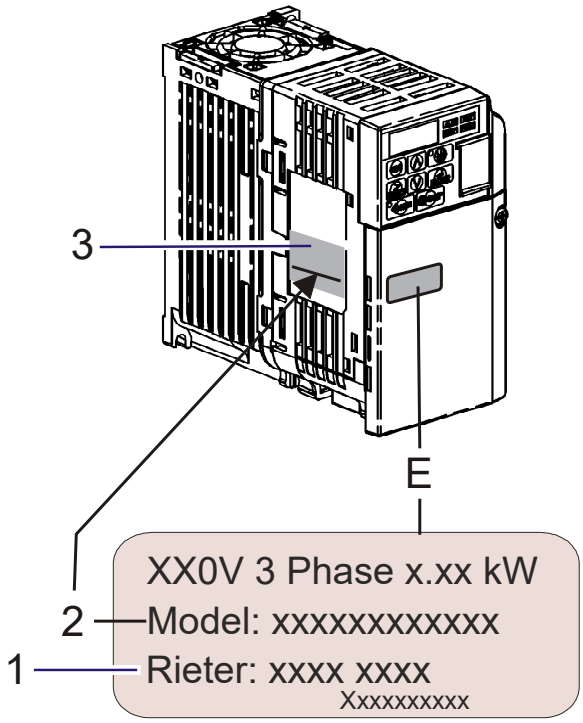

Figure 292: Identifying the frequency converter

The Rieter article number 1 on the attached adhesive label E has to agree with the article number of the respective device in the electrical documentation.

The model designation 2 has to agree with the designation on the manufacturer's label 3 on the side of the frequency converter.

9.8.2.2 Regenerating the Replacement Frequency Converter

DANGER

DANGER

Even after the appliance has been disconnected from the mains, the intermediate circuit remains live (intermediate circuit capacitor).

Failure to observe the discharge duration specification can lead to fatal injuries.

✓ Only qualified electricians are permitted to work at the frequency converter.

▶ A 10-minute wait period (discharge duration) is required following disconnection from the mains.

▶ Avoid contact with any live parts.

▶ Wait until the LED (CHARGE) is no longer lit. Then wait a further 5 minutes.

▶ Check the voltage for the intermediate circuit. The voltage has to have dropped to below 30 volts.

Orientation The replacement frequency converters held in storage must be connected to a mains supply for at least one hour every six months. This allows the internal component to regenerate themselves.

Setting aim: The replacement equipment can be put into service at any time.

1. Remove the frequency converter.

Removing the frequency converter ▸ 274

1. Install the frequency converter.

Installing the frequency converter ▸ 277

9.8.2.3 Replacing the Frequency Converter

Orientation Removing the frequency converter

Installing the frequency converter ▸ 277

Frequency converters are subject to natural aging effects. Frequency converters are to be replaced at regular intervals with inspected replacement equipment. Doing so effectively prevents equipment failure.

Prerequisites Make sure that the criteria are obeyed:

✓ Authorized RIETER Service Personnel only may service frequency converters.

1. For replacement equipment service: Please contact your nearest RIETER Service Center or RIETER Parts.

9.8.2.4 Removing the Frequency Converter

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Orientation Description Frequency converter

The actual appearance of the housing to be removed may differ from the illustration.

Removing the Cover From the Power Unit

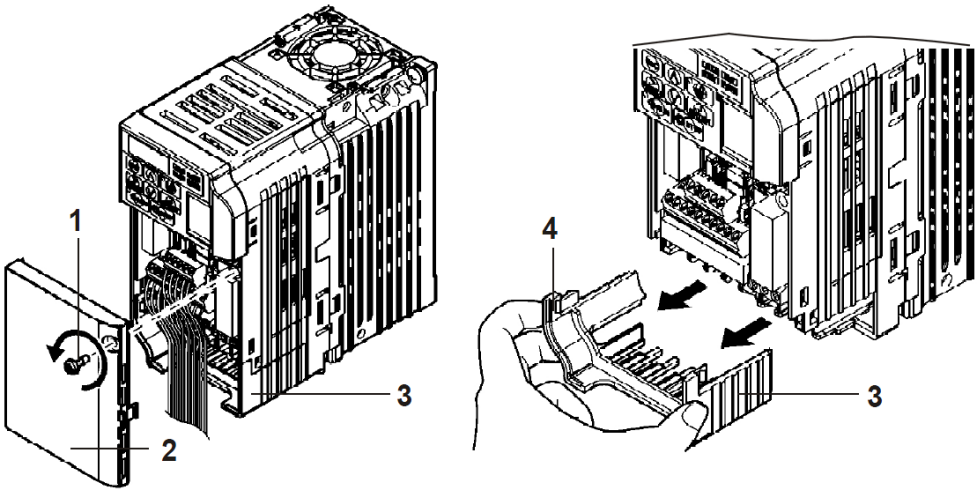

Figure 293: Removing the cover from the power unit_1

1. Loosen the screw 1 and remove the cover 2.
2. Press the pawls 4 of the cover 3 inwards.
3. Remove the cover 3 in the direction of the arrow.

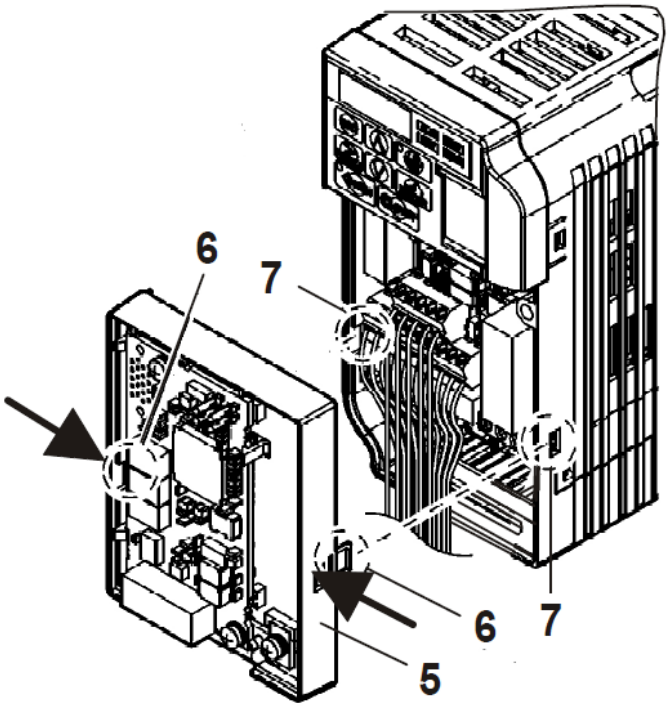

Figure 294: Removing the cover from the power unit_2

4. Carefully press the detention pawls 6 on both sides of the module 5 inwards.

Result The pawls 6 are released from the recesses 7.

1. Remove the module 5.

Reading Data off the Charge Indicator

DANGER

Even after the appliance has been disconnected from the mains, the intermediate circuit remains live (intermediate circuit capacitor).

Failure to observe the discharge duration specification can lead to fatal injuries.

- ✓ Only qualified electricians are permitted to work at the frequency converter.
- ▶ A 10-minute wait period (discharge duration) is required following disconnection from the mains.
- ▶ Avoid contact with any live parts.
- ▶ Wait until the LED (CHARGE) is no longer lit. Then wait a further 5 minutes.
- ▶ Check the voltage for the intermediate circuit. The voltage has to have dropped to below 30 volts.

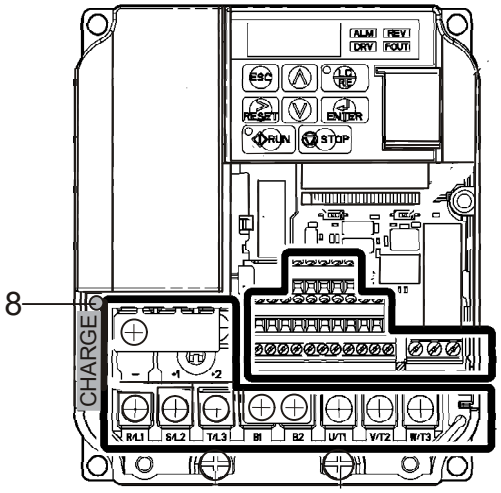

Figure 295: Reading data off the charge indicator

1. Check whether or not the (CHARGE) LED lights up.
   ⇨ The LED will light up if the voltage for the intermediate circuit still exceeds 50 VDC.
2. Wait until the (CHARGE) LED has gone out.
3. After the (CHARGE) LED has gone out, wait a further 5 minutes.

4. Measure the residual voltage between the terminals with the designations (-) and (+1) (intermediate circuit).

The positioning of these terminals within the power block is dependent on the design.

1. As soon as the residual voltage for the intermediate circuit has dropped to below 30 VDC, disconnect the cables.

Disconnecting the Cables

1. Check the markings on the terminals and cables. Ensure that the cables are connected correctly during re-installation.
2. Disconnect the power and control terminals.
3. Disconnect the earth terminals.
4. Do NOT pull the cables out of the cable ducts.

The cable ducts remain in the electrical control cabinet of the machine while the frequency converter is being replaced.

1. Loosen the four retaining screws and remove the frequency converter.

See also

Removing the Frequency Converter [▶ 274]

9.8.2.5 Installing the Frequency Converter

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Identifying the Frequency Converter

1. Prior to installation, check that the device is available.

Orientation Identifying the frequency converter

1. Equip the device appropriately.

Equipping the frequency converter ▶ 278

1. Configure the device for use with the machine.

Configuring the frequency converter ▶ 279

1. Install the device, applying the same steps used for removal, but in reverse order.

Connecting Cables

Prerequisites Make sure that the criteria are obeyed:

✓ Apply the same steps used for removal, but in reverse order.

1. Connect the control, power and earth cables according to their designations.
2. Pay attention to the electric documentation.

3. Pay attention to the specifications concerning the connection of the earth cable.

Equipping the frequency converter ▸ 278

9.8.2.6 Equipping the Frequency Converter

Orientation Replace the frequency converter

The device has to be equipped according to its design.

CAN Module SI-S3/V

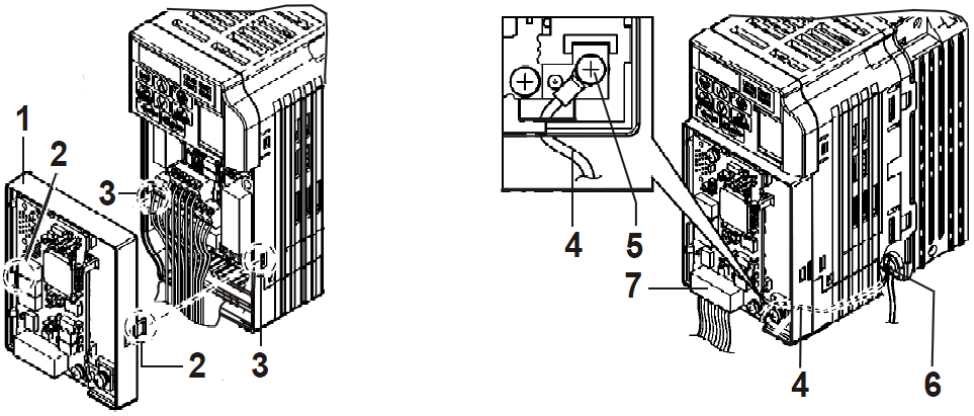

Figure 296: Equipping the frequency converter

1. Gently press the detention pawls 2 on both sides of the module 1 inwards.
2. Press on the module 1 until the pawls 2 lock into place in the recesses 3.

Connecting the Earth Cable of the CAN module

Prerequisites Make sure that the criteria are obeyed:

✓ For all variants, the earth cable 4 running from the CAN module to the frequency converter has to be kept as short as possible. Attach the earth cable 4 to the earth terminal 5 of the CAN module.

1. Attach the earth cable 4 to the earth terminal 6 of the frequency converter.

For all variants, the earth cable has to be run in such a way that any covers can be closed correctly.

1. Insert the connector 7 of the CAN bus cable.

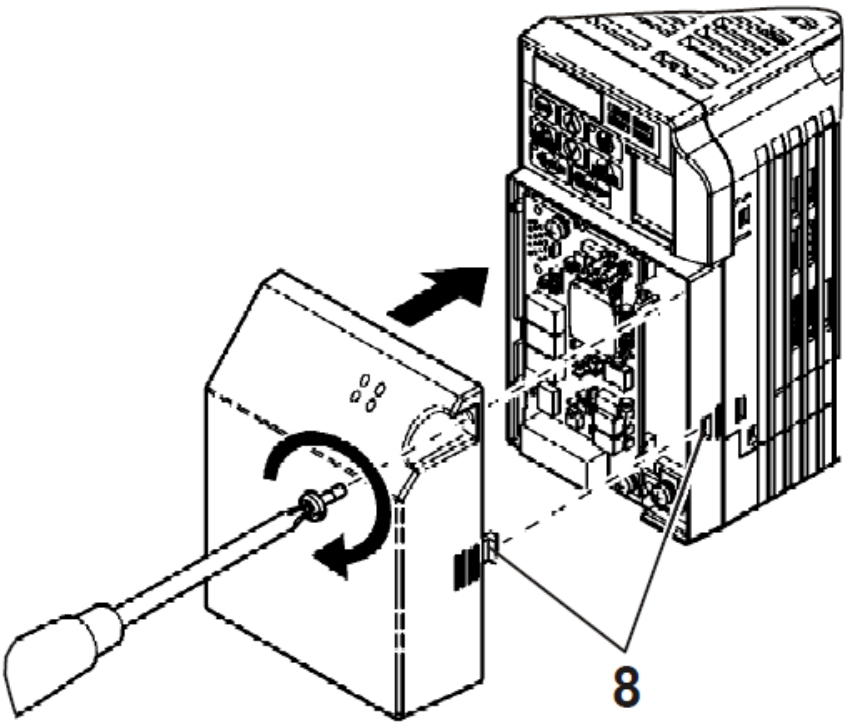

Figure 297: Connecting the earth cable of the CAN module

2. Fit the covers 8.

9.8.2.7 Configuring the Frequency Converter

Orientation Replace the frequency converter

DANGER

DANGER

Even after the appliance has been disconnected from the mains, the intermediate circuit remains live (intermediate circuit capacitor).

Failure to observe the discharge duration specification can lead to fatal injuries.

✓ Only qualified electricians are permitted to work at the frequency converter.

- ▶ A 10-minute wait period (discharge duration) is required following disconnection from the mains.
- ▶ Avoid contact with any live parts.
- ▶ Wait until the LED (CHARGE) is no longer lit. Then wait a further 5 minutes.
- ▶ Check the voltage for the intermediate circuit. The voltage has to have dropped to below 30 volts.

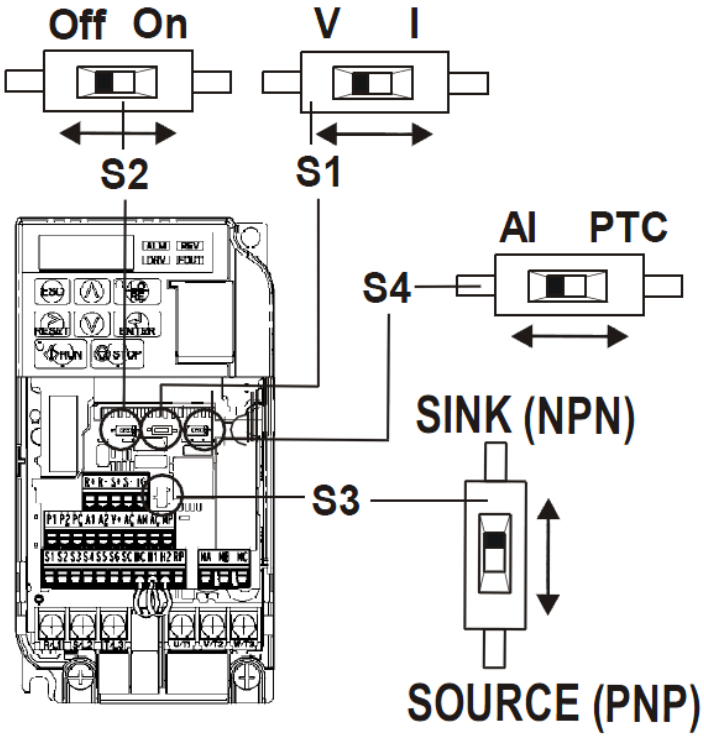

Figure 298: Configuring the frequency converter

The frequency converter is configured using the (S1...S4) switches on the control card.

Setting the S1, S2, S3 DIP Switches

1. Set the S1 switch.

S1 switch position:

U21 frequency converter	I
U22 frequency converter	I
U23 frequency converter.	I
U31 frequency converter	I
U32 frequency converter	I
U37 frequency converter	I

1. Set the S2 switch.

S2 switch position:

U21 frequency converter	On
U22 frequency converter	On
U23 frequency converter.	On
U31 frequency converter	On
U32 frequency converter	On
U37 frequency converter	On

1. Set the S3 switch. (Digital inputs of the frequency converter.)

S3 switch position:

U21 frequency converter	SINK (NPN)
U22 frequency converter	SINK (NPN)
U23 frequency converter.	SINK (NPN)
U31 frequency converter	SINK (NPN)
U32 frequency converter	SINK (NPN)
U37 frequency converter	SINK (NPN)

1. Set the S4 switch.

S4 switch position:

U21 frequency converter	AI
U22 frequency converter	AI
U23 frequency converter.	AI
U31 frequency converter	AI
U32 frequency converter	AI
U37 frequency converter	AI

9.8.2.8 Adapting to the Cooling System

Orientation Replace the frequency converter

Adapt the frequency converter to the cooling system used in the machine.

Heat Transfer Plate

Before installing the device:

Prerequisites Make sure that the criteria are obeyed:

- ✓ Coat the heat transfer plate with heat transfer compound, applying it uniformly and across the entire surface.
- ✓ Use a paint roller instead of a brush.

1. Use a spatula to remove old heat transfer compound residue from the heat transfer plates.
2. Use solvent to remove any remaining traces of residue.
3. Check whether or not the transfer plate is damaged. Carefully file off or grind off any local unevenness.

Requirements for the Heat Transfer Compound

Composition	Silicone-free
Thermal conductivity	0.9 - 1.0 W/mK

9.8.2.9 Setting the T1000V Frequency Converter

Orientation Replace the Frequency Converter

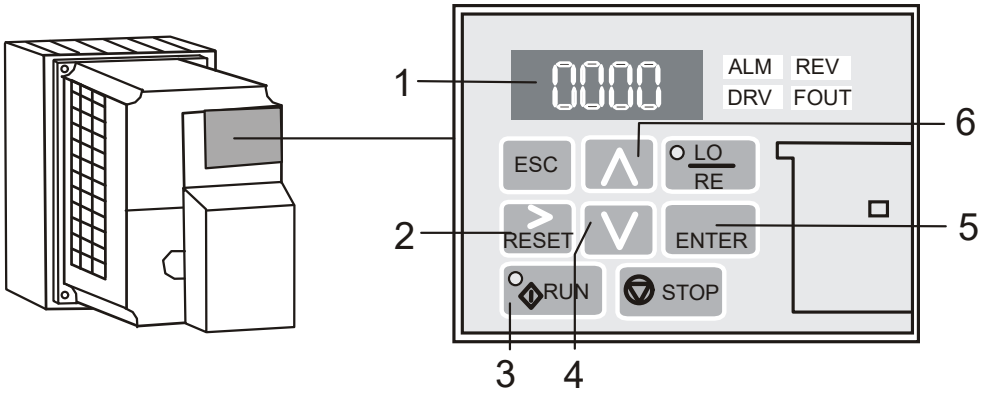

Figure 299: Setting the T1000V frequency converter.

Whenever the frequency converter is replaced, the baud and the node address have to be set.

Preparatory Tasks Prior to Making the Settings

Prerequisites Make sure that the criteria are obeyed:

- ✓ Voltage has to be applied to the frequency converter to be set.

1. Switch ON the machine via the main switch.

Setting Authorisation (for All Frequency Converters)

1. Press key 4 or 6 until the parameter(PAr) appears on the display 1.
2. Confirm using key 5.
   ⇨ The parameter (A1-01) flashes on the display 1.
3. Press key 5 several times until the display indicates the parameter value.
4. Use key 2 to move from one digit to the next and keys 4 and 6 to adjust the value («0002»).
5. Confirm using key 5.
   ⇨ («End») lights up briefly, followed by the set value («0002») and finally (A1-01).

Result The authorisation for changing any parameter value has now been set up.

Initialisation (for All Frequency Converters)

Prerequisites Make sure that the criteria are obeyed:
✓ Authorisation has been set up and (A1-02) is being flashed on the display.

1. Use key 6 to increase the final digit of the display 1 to («3»).
2. Confirm using key 5.
3. Using keys 2 4 and 6, enter the value («2220»).
4. Confirm using key 5.
   ⇨ Once initialisation is complete, (A1-03) appears again.

Communication Parameter: Select the “Do NOT initialise” Setting

Prerequisites Make sure that the criteria are obeyed:
✓ Authorisation has been set up and (A1-02) is being flashed on the display.

1. Use key 2 to move to letter (A) on the display 1.
2. Use key 6 to change the (A) to an (F).
3. Use key 2 to select the parameter (F6-08).
4. Confirm using key 5.
5. Use key 2 to select the final digit.
6. Use keys 4 and 6 to set the value («00»).
7. Confirm using key 5.

Setting the Baud

Prerequisites Make sure that the criteria are obeyed:
✓ Authorisation has been set up and (A1-02) is being flashed on the display.

1. Use key 2 to move to letter (A) on the display 1.
2. Use key 6 to change the (A) to an (F).
3. Use key 2 to select the parameter (F6-36).
4. Confirm using key 5.
5. Use key 2 to select the final digit.
6. Using keys 4 and 6, set the («0»).
7. With the value set to («0»), the search for the baud occurs automatically.
8. Confirm using key 5.

Setting the Node Address (Dependent on the Frequency Converter Selected)

Prerequisites Make sure that the criteria are obeyed:

✓ Determine the node address of the respective frequency converter from the electrical circuit diagram. Authorisation has been set up and (A1-02) is being flashed on the display.

1. Use key 2 to move to letter (A) on the display 1.
2. Use key 6 to change the (A) to an (F).
3. Use key 2 to select the parameter (F6-35).
4. Confirm using key 5.
5. Use key 2 to select the final digit.
6. Using keys 4 and 6, set the node address.
   ⇨ The node address is indicated in the relevant data screen.

30.6 ▸ 93

1. Confirm using key 5.

Finishing

1. After the settings have been made, select “Automatic mode” in data screen 80.1.

Result The machine prepares for operation. “Ready for operation” appears on the status line.

9.9 Operator Panel

9.9.1 Inserting the Modules and Plugs on the Operator Panel

Replacing the operating unit (including the control unit) ▸ 227

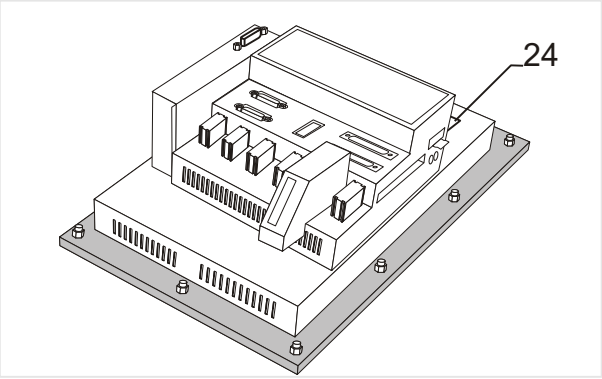

Figure 300: Inserting the modules and plugs on the operator panel

The modules and plugs have to be inserted according to the electric manual.

Setting aim: Equipping the control system specifically for the machine.

See also

Operator Panel [▶ 284]

9.9.2 Adjusting the Contrast on the Display Unit

Orientation Replacing the Operating Unit (Including the Control Unit)

The brightness of the display needs adjusting depending on the lighting. If the setting is wrong black stripes will be visible.

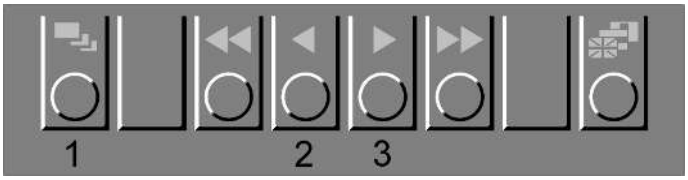

Figure 301: Adjusting the contrast on the display unit

Prerequisites Make sure that the criteria are obeyed:

✓ The overview (basic screen or malfunction) is displayed.

1. Hold the "BASIC-DISPLAY-key" 1 down. Simultaneously press the "DATA-DISPLAY-key-backward 2".

   ⇨ The screen gets darker.

2. Hold the "BASIC-DISPLAY-key" 1 down. Simultaneously press the "DATADISPLAY-key-forward 3".

   ⇨ The screen gets lighter.

9.10 Key Strip of the Operator Panel

9.10.1 Change Keyboard Strip

Replacing the operating unit (including the control unit) ▸ 227

Pull out the keyboard strip ▸ 286

Insert keyboard strip ▸ 286

9.10.2 Pull Out the Keyboard Strip

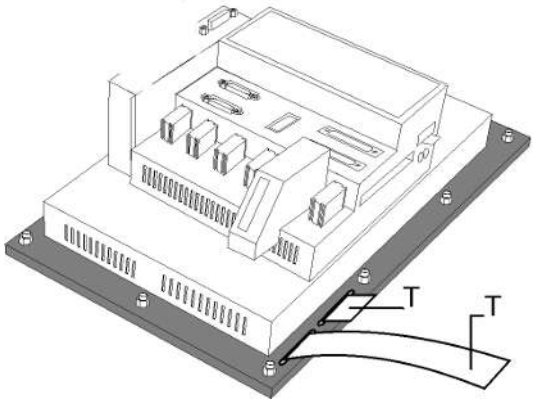

Figure 302: Pull out the keyboard strip

1. Loosen the nuts on the circumference of the operator panel.
2. Pull out the keyboard strip T.
3. Tighten the nuts on the circumference of the operator panel again.

9.10.3 Insert Keyboard Strip

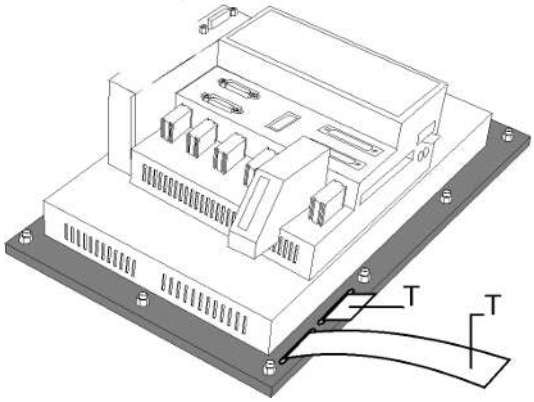

Figure 303: Insert keyboard strip

1. Undo the nuts on the circumference of the operator panel.
2. Insert keyboard strip T.

3. Tighten the nuts on the circumference of the operator panel again.

9.11 Torque Standard

Screw dimension	Strength class	Torque	Clamping strength
M4	8.8	3.1 Nm	3.9 kN
	10.9	4.5 Nm	5.7 kN
	12.9	5.3 Nm	6.7 kN
M5	8.8	6.1 Nm	6.4 kN
	10.9	8.9 Nm	8.3 kN
	12.9	10.4 Nm	10.9 kN
M6	8.8	10.4 Nm	9.0 kN
	10.9	15.5 Nm	13.2 Kn
	12.9	18.0 Nm	15.4 kN
M8	8.8	25.0 Nm	16.5 kN
	10.9	37.0 Nm	24.2 kN
	12.9	43.0 Nm	28.5 kN
M10	8.8	51.0 Nm	26.0 kN
	10.9	75.0 Nm	38.5 kN
	12.9	87.0 Nm	45.0 kN
M12	8.8	87.0 Nm	38.5 kN
	10.9	130.0 Nm	56.0 kN
	12.9	150.0 Nm	66.0 kN
M16	8.8	215.0 Nm	72.0 kN
	10.9	310.0 Nm	106.0 kN
	12.9	370.0 Nm	124.0 kN
M20	8.8	430.0 Nm	117.0 kN
	10.9	620.0 Nm	166.0 Kn
	12.9	720.0 Nm	194.0 kN
M24	8.8	740.0 Nm	168.0 kN
	10.9	1080.0 Nm	239.0 kN
	12.9	1240.0 Nm	280.0 kN

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10 Decommissioning and Storage

This chapter contains the information about the decommissioning, the storage of the machine and the correct preventive maintenance.

10.1 Decommissioning

- Put the machine into a safe state
- Disconnect the power supply.
- Protect the machine from misuse.
- Secure the machine in such a way that when it is idle there is no risk of injury to any person.
- The machine-specific regulations with regard to decommissioning must be observed.
- The machine must be suitably protected against soiling and corrosion.
- The regulations and operating procedures specific to the machine are listed in the Chapter "Decommissioning and Storage". These regulations, and particularly the safety regulations, must be adhered to most exactly.

10.2 Storage

The steps to keep the machine safe are as follows:

- To prevent from contamination or corrosion, keep the machine in a clean and dry room.
- Make sure that no unauthorized operation occurs at the machine.
- Make sure that the machine has no risks of injury to personnel.

10.3 About the Operating Fluids

All operating fluids are to be removed from the machine. The local laws and regulations are to be obeyed for the storage or the disposal of all operating fluids.

10.4 Cleaning the Machine

Make sure that the machine is cleaned before the decommissioning. For more information about how to clean the machine, please refer to chapter “Maintenance” of this manual.

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11 Disposal of the Machine

This chapter contains the information about the disposal of the machine after the service life end of the machine. When the machine becomes discarded, the applicable national and regional laws and directives are to be obeyed.

11.1 Disposal

In the case of the machine being conclusively removed from operation, the legal regulations of the relevant country should be observed.

This applies in particular to:

- Re-usability
- Recycling
- Waste disposal

It must be ensured that the fuel remaining in the machine is disposed of in accordance with regulations.

Fuel such as oils, grease and batteries.

The regulations and operating procedures specific to the machine are listed in the Chapter "Disposal". These regulations, and particularly the safety regulations, must be adhered to most exactly.

11.2 Safety Regulations

WARNING

Falling machine components!

Dangerous injuries by crushing of body parts

- ▶ Do NOT lift heavy components manually.
- ▶ Always use a safe and applicable lifting device.

11.3 Safety Precautions during Dismantling

When tackling dismantling jobs it is necessary to take suitable safety precautions.

Switch off main switch Q10 and secure with padlock.

All jobs requiring these security measures are indicated by an appropriate symbol on the particular page.

11.4 Operating Materials

Ensure proper disposal of operating materials. Drain oil, coolant, etc.

11.5 Owner or Operator Responsibility

The machine owner or the operator is responsible for the disposal of the machine.

For the disposal of the assemblies that were not made by Rieter, the related instructions that are given in the supplier documentation are to be obeyed.

11.6 Discarding the Machine

When the machine becomes discarded, the applicable national and regional laws and directives are to be obeyed.

11.7 Notice to the Manufacturer and the Authorities

Before the machine becomes discarded, the user must tell the related disposal authorities and the government agencies.

Tell the machine manufacturer – Rieter – about the disposal of the machine.

E-mail: info@rieter.com

11.8 Accident Prevention

The regulations relating to workplace safety must be absolutely complied with!

11.9 Dismantling

Orientation The following procedures may be done by trained specialists only who are familiar and comply with the general safety regulations.

1. The machine must be dismantled into units that can be safely transported.
2. Hazardous machine parts that pose a risk during transport must be dismantled and safely packed.

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